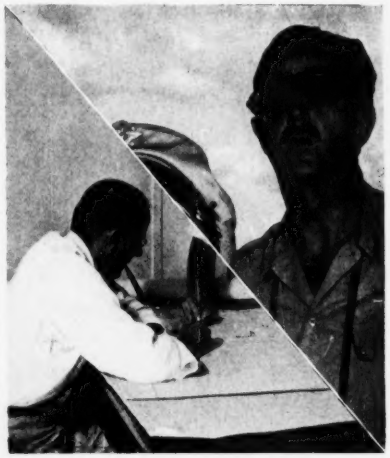
Chemical Week

December 13, 1952 Price 35 cents



Factory or field? Best use of technical manpower is top-rung question . . . . . p. 15

Fast rundown of upcoming patent law; how it will affect your research policies . . . . . p. 30

Still to be settled: which urea maker will edge ahead with which process? . . . . . p. 40

Soil conditioner sellers ogle '53; prospect: rough, gloves-off tussle . . . . . p. 50

Chemical firms take to the air; here's who owns planes, why they use them . . . . . p. 70

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Chemical Week

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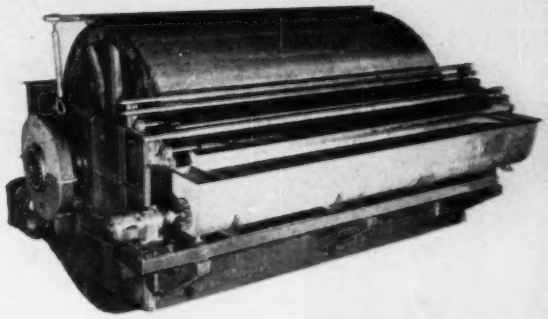

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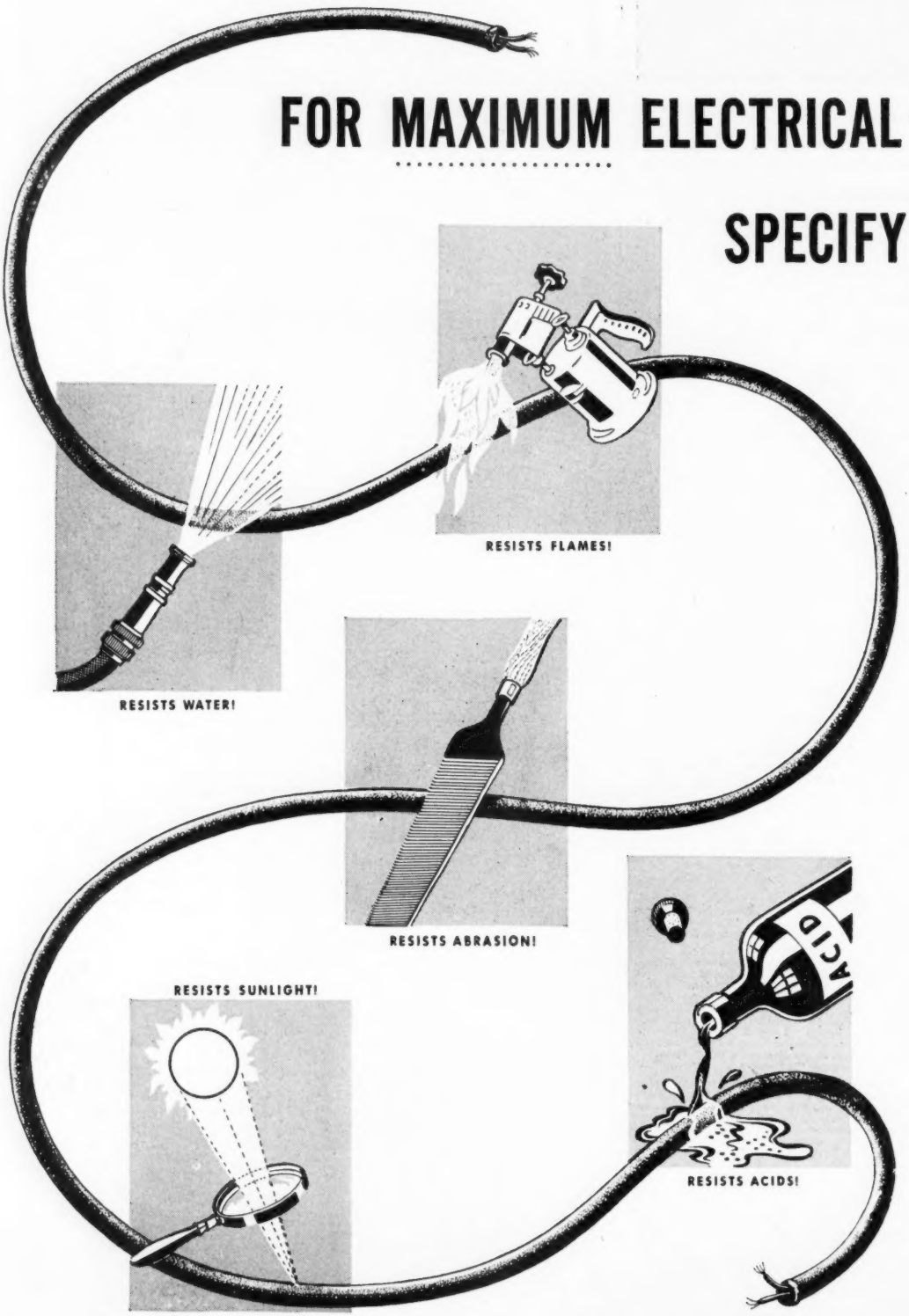

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PROPERTIES OF EXON 500

TABLE I

Resin Physical Properties

FORM	WHITE POWDER
Specific Gravity	1.40
Average Bulking Density, gm/c.c.	0.50
Average Relative Viscosity	2.55

TABLE II

Electrical Properties of a Typical Wire Compound

Insulation Resistance (15.6°C) (Megohms/1000 ft.)	4500
Dielectric Constant (23°C) (SIC—one day)	7
Dielectric Strength, KV. (in oil at 23°C)	36
Power Factor (60 cycles at 23°)	0.100

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OPINION

Expose Fancy With Facts

To the Editor: It is always interesting to read CW . . . and in particular the news article (Nov. 15) re the public condition of smoke pollution throughout the nation. As you suggest, we may be hearing more about this community "problem" in the future. . . .

This brings up another point of view. . . . If industry is to truthfully and unemotionally maintain its personal interests in free enterprise . . . it must organize itself to expose fancy with facts. . . . Industry must get together on an unbiased scientific program of community-industrial relations. . . . Pollution is not going to be solved now or for the future by a legal or medical approach . . . but, in many instances, this is the way the challenge is being accepted and provoked. . . .

We have attempted to develop the idea in Tacoma that before the word "problem" is attached to pollution, it must be proven that pollution really exists *out in the community*. . . . We have decided we do not necessarily have smoke pollution just because we see a visible cloud issuing from a chimney.

However, this latter has been the deciding fact by some as to whether an industry . . . is guilty of the sin of pollution. Obviously, the existence or not of smoke pollution must be based on *concentrations* of substances —out in the community. This is the real problem . . . and unless it's recognized little good will come out of feverish arguments between citizens, doctors, lawyers, industrial executives. . . .

Tacoma has had great help from the Industrial Bureau of the Chamber of Commerce and Tacoma Engineer's Club in solving its conditions of smoke pollution. Such interested civic bodies have been truly interested in public situations . . . have lent support and recommendations to city government. . . .

John Rosene
Special Engineer to City of Tacoma
Tacoma, Wash.

Query the Carrot

To the Editor: . . . Shortly after reading your editorial on the "down-with-chemicals" organic farming zealots (Nov. 5) . . . I noticed the enclosed item in Time (Nov. 17). . . .

I thought you might have seen it . . . but anyhow you would be interested to see that chemicals are now being damned by the food faddist

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viscose rayon
cleaning compounds
reclaiming rubber
mercerizing cotton
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Koppers Building, Pittsburgh 19, Pa.

OPINION . . . . . .

Gayelord Hauser . . . who a year or so ago was really beating the drum for yogurt. . . .

. . . Chemicals are becoming popular whipping-boys. . . .

J. S. CARTIERE
Three Rivers, Que.
Canada

The item: From Hauser's new book "Look Younger, Live Longer," a plea for the better earth or "certified soil" to which all waste matter—animal or vegetable—is returned so that it need never be defiled by "unnatural" chemical fertilizers. The book reviewer's question: How does a carrot tell the difference between phosphates from a decaying cat and those from a Swift & Co. container?—ED.

Short-Sighted? Unsound?

TO THE EDITOR: As readers of CW, we have always given close attention to contents of your weekly Newsletter, which we always considered a fairly reliable source of information. Our feelings in this respect were considerably shaken upon reading your information about the barter deal between Commodity Credit Corp. and the Calabrian Co., Inc., in New York *(CW Newsletter, Oct. 11)*.

We have been struck not only by the fact that you are giving a bad service to international trade by publishing information of this kind, but our surprise . . . was so much the greater when we saw that the information you are giving is completely incorrect . . .

Our firm, in close cooperation with our friends The Calabrian Co., brought about this barter-transaction with the U. S. Government.

The conclusion . . . in your Newsletter, starting from the wrong assumption that the price for the wheat would be $2.40 a bushel, resulting in a price of $55 a ton for the sulfate, is completely ridiculous. Needless to say, such publication does great harm to the development of further business, and we think you would do far better to refrain in the future from putting up details about which you are not certain . . .

Perhaps you can see in the above

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

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OPINION . . . . . .

an inducement to at least publish a correction . . . though that can in our opinion never repair the damage which has been done by your short-sighted, unjustifiable and unsound publication.

(SIGNATURE ILLEGIBLE)
Brusse & Sippel
Amsterdam, Holland

If our Holland reader thinks we should refrain from publishing legitimate news about a government transaction simply because it may embarrass one of the participants, we certainly cannot agree. Our U. S. readers are entitled, in any case, to such information; and this barter deal, because of its novelty, was especially newsworthy.

Moreover, we fail to see why anyone should be embarrassed. It would appear that everyone concerned—not least the American taxpayer—benefited by the arrangement, since the Mutual Security Agency was able to buy fertilizer at a favorable price.

Neither can we agree that we were incorrect at all—much less "completely incorrect." The only factual point with which our reader takes issue is the $2.40-per-bushel value we ascribed to the wheat. We checked the Commodity Credit Corp. itself, got a $2.36 figure which we rounded off to $2.40. —ED.

MEETINGS . .

Amer. Society of Mechanical Engineers and Society for Advancement of Management, plant maintenance conference, Cleveland, O., Jan. 19-22.

Society of Plastics Engineers, Inc., ninth annual technical conference, Hotel Statler, Boston, Mass., Jan. 21-23.

Compressed Gas Assn., Inc., 40th annual meeting, Waldorf-Astoria, New York, N.Y., Jan. 26-27.

Manufacturing Chemists' Assn., Inc., 1953 industry conference on air pollution abatement, Hotel Statler, Detroit, Mich., Feb. 26-27.

Nat'l Assn. of Corrosion Engineers, 1953 conference, Chicago, Ill., March 16-20.

Magnesium Assn., first Internat'l Magnesium Exposition, National Guard Armory, Washington, D.C., March 31-April 2.

Packaging Machinery Mfrs. Institute, semi-annual meeting, Sheraton Hotel, Chicago, Ill., April 18-19.

Penna. Mfg. Confectioners' Assn., seventh annual production conference, Lehigh University, Bethlehem, Pa., April 23-24.

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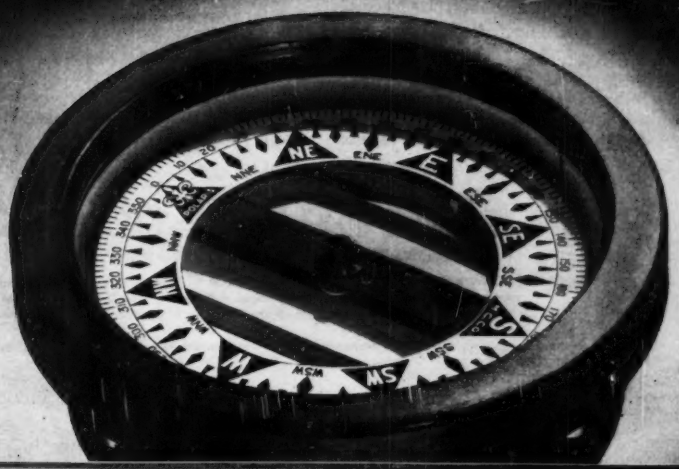

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NEWSLETTER

Straw in the wind: Lists of certificates of necessity granted by Defense Production Administration are now getting so short that they're issued only once every two weeks. Until now they've been issued weekly. Authorized expansions are thus nearing DPA goals.

Someone will pick up a Christmas bargain from Uncle Sam when bids are opened December 22 on the government's $4\frac{1}{2}$ million alumina-from-clay plant near Salem, Ore.—but it's no cinch to make a profit.

It was built during World War II, when the military wanted a safe, stateside source of alumina for aluminum manufacture. It produced a total of 50 tons of expensive, middling-grade product. It was later converted to ammonium sulfate and manganese dioxide production, but its most recent operator, dry battery-making Ray-O-Vac (Madison, Wis.), found it uneconomical. How it will be utilized next is anybody's guess.

The National Research Council has a project that appears high-sounding and ivory-towerish, but it may prove to have long-range significance. It has appointed a committee to survey problems affecting the pattern of scientific activity in the U. S.

The group will attempt to identify the forces responsible for the continued vitality of scientific research and how they operate. Then they can recommend corrective measures in the less fruitful sectors.

More down to earth are next year's goals for medical research, as outlined by Schenley Laboratories' Vice President Arthur Gormley.

He sees a shift in emphasis from the do-everything antibiotics to the do-one-thing-well specialty drugs; and he sees five major areas calling for such medicaments: geriatrics, cardiovascular disorders, nutrition, mental disturbances, and arthritic and rheumatoid ailments.

Part of the reason for the shift: lower profits on antibiotics (cf. *CW*, Nov. 29). Specialty preparations provide better profit potential.

Here's a labor trend that may pad your payrolls: Springing up among the "Big Four" rubber firms is a practice that may add $20 a year to each employee's take, and it may spread to other manufacturing fields.

The Wage Stabilization Board has approved triple pay for holiday work for 20,000 United Rubber Worker (CIO) members employed by B. F. Goodrich. The union will next ask WSB's approval of the same policy for its Firestone and U. S. Rubber workers, and it will likely go through.

The policy was bulled through WSB by one of its labor members (and a vice president of the URW), Joseph Childs. His argument: It isn't inflationary since the total cost would be small; only 3% of the workers would be on duty on holidays.

The normally unruffled Boston wool merchants are now worried about the inroads synthetic fibers are making. Under consideration: a tax on every pound of wool they handle, the proceeds to go to an advertising and promotion fund. They're taking a cue from the Wool Bureau, promotional arm of the British Commonwealth sheep raisers.

The American Wool Council, which wavers between being a Wool Bureau division and being a separate entity (depending upon whether it is stressing industry solidarity or "Buy American") meanwhile is leaping to the defensive on its own hook.

President J. B. Wilson, stressing again a familiar argument, labels chemical companies making synthetic fibers as "powerful interests with untold millions of dollars" to spend on merchandising "mass attacks" against 100% wool fabrics.

The new administration will doubtless turn a more critical eye on federal power projects than the outgoing one. That's why Tennessee Valley Authority is turning out a publicity barrage on a Kiwanis Club speech made last week wherein its top man, Gordon R. Clapp, defended TVA's twenty-year record and presented a "five-year plan" of expansion which, together with current building, would triple TVA's power output by 1956.

TVA now produces 4 million KW. Plants under way (including the controversial steam plants) will boost output to 9½ million KW. TVA's the one to do it, he says. For each city or industrial unit to build its "own little steam plant is an outworn notion."

More fertilizer production is on the agenda, too.

But while the federal government competes, it also aids—by authorizing foreign nations to buy chemicals under MSA grants:

- Thailand—300 tons of DDT insecticide (75% water-dispersible powder) from the U. S. or possessions.
- Italy—$1 million's worth of phosphate rock from the U. S. by next March 31.
- Formosa—228,100 pounds of phenolic molding compound and 40,680 pounds of polyethylene plastic film.
- Greece—$150,000's worth of plastics raw materials from the U. S. or its possessions by March 31.

Here are some corporate plans of more than passing interest:

- Paper—Devouring Time, Inc., is half-owner (with Houston Oil Co.) of newly formed East Texas Pulp and Paper Co., which will turn out 90,000 tons a year in a plant to be built in Jasper County.
- Unpublicized but important are M. A. Hanna Co.'s (Cleveland) plans to exploit a nickel silicate deposit in Utah, using a Bureau of Mines-developed arc-smelting process which makes ferro-nickel alloy directly from the ore. The $4 million project would make Hanna the first large-scale domestic nickel producer.
- One's in but another's out: Union Oil has dropped its option on a tract near Seattle where it had considered building a refinery; General Petroleum has a $35 million refinery under way near Ferndale, Wash.

Aerosol-dispensed hair lacquers have made scare headlines in Buffalo, New York and points west. Fire department chiefs and safety officials have charged that the products are dangerously flammable for home use if proper precautions aren't taken.

Speaking for the producers, the Chemical Specialties Manufacturers' Association this week pointed out that over 8 million cans have already been sold, and not one instance of injury or fire has been reported. Packers of these materials have nevertheless assured CSMA that they will make certain their labels carry adequate warnings.

. . . The Editors

CELLINI'S NOSPHIOLOSI CUP FROM METROPOLITAN MUSEUM OF ART

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Picolines
Quinoline
Lutidines
Tar Acid Oils
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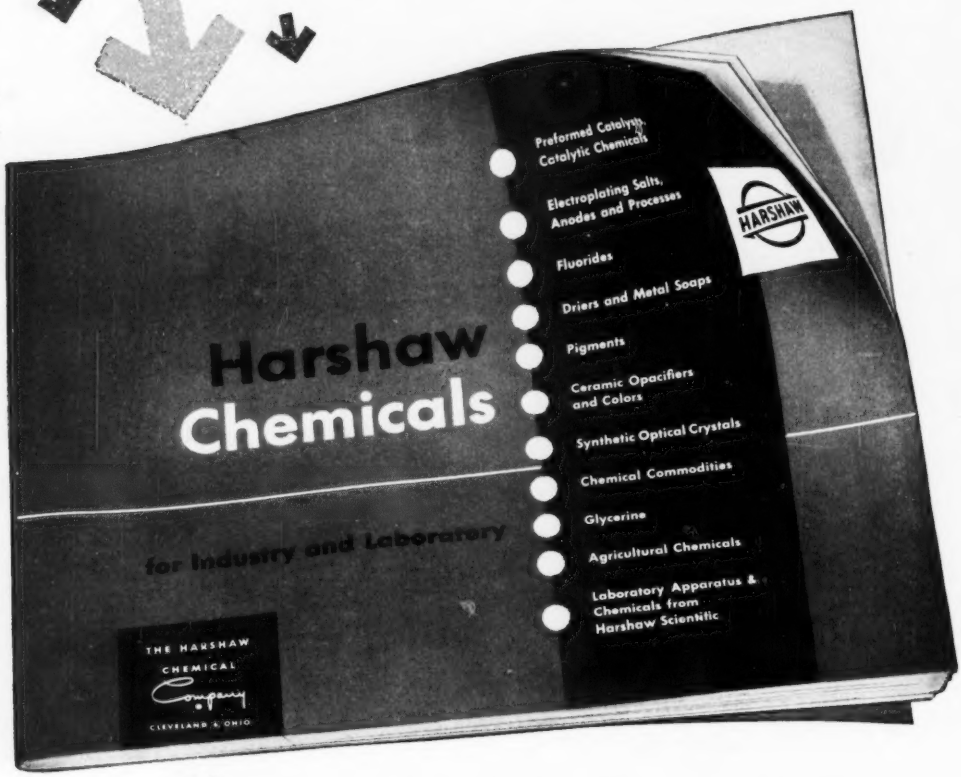
16 PAGE BOOK...



This 16 page illustrated booklet describes the major activities of The Harshaw Chemical Co. It lists manufactured items and offers booklets which furnish more specific information about these Harshaw products.

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THE *Harshaw* CHEMICAL COMPANY
CLEVELAND 6 OHIO

MANPOWER COMMISSION*: Plugging for legislation.

Target: AFRA

Exercised by the continuing critical shortage of technically trained men, the Armed Forces Chemical Association Technical Manpower Commission is pinpointing attack upon the Armed Forces Reserve Act (Public Law 476, 82nd Congress, passed July 9, '52).

With industry's demand for college-trained personnel surging at unprecedented rates, and with charges of poor utilization of the already short supply adding to the hue and cry, a Technical Manpower Commission was created last month by the Armed Forces Chemical Association to review the situation. The Commission now proposes a solution: creation of a specialized independent agency or board in the office of the President with authority to act on the reservist problem.

Balance is Needed: Most serious of their charges against the present AFRA: "It does not provide for a balanced allocation of those persons having special skills and experience to meet military mobilization requirements" and those necessary to maintain the demands of industry supporting the mobilization.

Reservists recalled to active military service may have, since their discharge, acquired particular skills important in the total defense effort. Their immediate recall, unprotected by classification, could seriously hamper industry and still not necessarily aid and abet the military to a comparable degree.

Some provision, the Commission feels, must be incorporated in the current AFRA to set this situation to rights. It could take the form of authorizing the President to create an independent civilian agency, composed of men equally familiar with the problems of both sides, charged with responsibility for, and given authority to control, recall of reservists having special skills.

That's Not All: But the Commission thinks that other steps are desirable, too:

- Continuous classification by the agency would be an essential.
- Local area boards would be necessary to apply the criteria procedures set up by the agency.
- Any adopted criteria for deferment should certainly be extended to embrace students of medicine, science, engineering, and closely allied fields.
- Authorization should cover the entire Reserve, including ROTC.
- The right to get continuing information on utilization of military personnel would require a further grant of authority to the Commission. Specifically, it should confer upon the agency the right of periodic examination and reports on military personnel.

Outlook: Plugging for such legislation, the Commission hopes to stem industry's rising tide of alarm over dissipation of its technical manpower. But strong opposition from the military to any extensive amendment to the AFRA seems certain; it will purse its lips contumaciously at any personnel scrutiny requirement.

*Left to right (*standing*), Col. Oscar C. Maier, AAF (Reserve), Pullman-Standard, and Donald B. Keyes, Arthur D. Little; (*sitting*) Col. Harry A. Kuhn, USA (Ret.), Allied Chemical and Dye; Walter E. Lawson, Du Pont, Chairman of AFCA Commission, Col. Louis W. Munchmeyer, president of AFCA, General Aniline and Film; and Maj. Gen. William N. Porter (Ret.), pres., Chemical Construction. Additional members of the Commission: Maj. Gen. Melvin J. Maas, Marine Reserve (Ret.), ex-v.p., Sperry Gyroscope; and Vice Admiral Earle W. Mills (Ret.), Foster Wheeler.

Fusion to the Fore

Unionization of employees in the chemical processing industries might be accelerated and their bargaining power might be vitalized by a move that seems to be shaping up since the Congress of Industrial Organizations, in its convention at Atlantic City last week, elected Walter P. Reuther as president to succeed the late Phil Murray.

Reuther's victory, according to ringside observers, has increased the chances of a merger of two CIO unions that previously have stepped on each other's toes in trying to organize the hired hands in chemical and petrochemical plants. These are the Oil Workers International Union and the United Gas, Coke & Chemical Workers of America.

On Winning Side: OWIU, with some 115,000 members and a long-standing desire to merge with the 71,000-member Gas-Coke, was instrumental in swinging the election to Reuther. Early in the convention, with the two presidential candidates in an unofficial deadlock, OWIU tipped the scales by declaring in favor of the fiery, 45-year-old head of the United Auto Workers. And OWIU's president, O. A. (Jack) Knight, made the nominating speech for Reuther, calling him "best qualified" to lead the CIO.

On the other hand, Gas-Coke supported to the finish Allan S. Haywood, the rival candidate. As executive vice-president and organizational director of CIO, Haywood has worked closely

with Gas-Coke and has been responsible for the financial assistance Gas-Coke has been getting from CIO.

This is where Gas-Coke may feel pressure toward a merger: Reuther favors big, strong unions, like his own UAW (more than 1 million members). It's expected that he'll try to help Knight work out a merger, but that he won't try to force that move if Gas-Coke continues to resist strongly. However, if Gas-Coke doesn't satisfy CIO brass with its 1953 performance, Gas-Coke may find its CIO subsidy cut off. This, in some unionists' opinion, would leave Gas-Coke little choice but to fuse with OWIU.

Ruckus on Patents

In the eyes of U. S. Attorney-General McGranery, the Schering Corp., now privately owned, has broken its contract with the Government by clinging to its patents as tenaciously as a bulldog grips a fresh soup-bone.

Before the Office of Alien Property auctioned the former German-owned pharmaceutical concern to a group of investment houses last March for more than $29 million, the Department of Justice exacted a pre-sale agreement requiring the new owners to turn loose several hundred patents. Now, in a civil suit filed in Federal District Court in Newark, N.J., McGranery is asking for enforcement of that agreement. Schering, with headquarters at Bloomfield, N. J., and a branch factory at Union, N. J., has indicated it will fight the suit.

Hormones & Slumber Pills: Specifically, the Government alleges that Schering has failed to carry out these two conditions of that contract:

- That Schering turn over to the Government, for re-sale to the public on a royalty-free, nominal-fee basis, 215 German-origin patents that the company held at the time that it was seized by the OAP in 1942, shortly after Germany and the U.S. declared war. Among these patents: hormones, sulfa drugs, X-ray diagnostics.
- That Schering grant non-exclusive licenses at reasonable royalty rates on all patents issued to the company during the time the firm was held and managed by the OAP. In this category: anti-histamines and Dormison, a non-habit-forming sleep-promoting pill.

The Justice Department claims that Schering denies its obligations under that agreement, and has failed to negotiate in good faith with other firms wanting such licenses.

Schering Denies All: Francis C. Brown, president of Schering, says the company has not violated any law and has not refused to negotiate with applicants for patent licenses. No licenses have been granted so far, he says, "because the applicants have not agreed to the reasonable royalty rate fixed by the company."

Attorneys have advised the company that the pre-sale agreement with the Government probably is invalid and unenforceable, Brown adds.

"The company welcomes this opportunity for a judicial determination of the validity of the contract . . . which the company was forced to sign during the time it was controlled by the Government."

Schering has twenty days in which to file an answer, but this time can be extended by court order. The suit has considerable significance for the chemical industry, not only because of the many Schering patents involved but also because similar situations may arise when the Government gets around to selling General Aniline & Film, General Dyestuffs, and one smaller chemical firm still held by the OAP.

EXPANSION. . . .

Activated Carbon: A new plant to produce activated carbon from hardwood char has been put into operation by The Girdler Corp., Louisville, Ky. The company also plans to erect a new catalyst plant adjacent to the activated carbon facilities.

•

Cat Cracker: Phillips Petroleum Co. has completed a $10 million catalytic cracking plant at its Woods Cross, Utah, refinery. With the new unit on stream, the company will increase its run of crude oil to stills from 4,500 to 10,000 barrels per day.

•

Ferro Alloys: Tenn-Tex Alloy & Chemical Corp. has begun production of ferro alloys at its new electric furnace plant at Houston. Most of the 2,000-tons annual output will go to the Sheffield Steel Corp., which has a small interest in the company.

•

Sulfur Extraction: Sinclair Refining Co. has completed a new sulfur extraction unit at its Marcus Hook refinery. The unit has a rated capacity of 21 tons of molten sulfur daily, made by conversion of hydrogen sulfide.

•

Polyvinyl Chloride: New facilities for the production of polyvinyl chloride film, used in "mothballing" military equipment, are under construction in Indian Orchard, Mass., by Monsanto Chemical Co. The $2.7-million plant will supplement the company's present plant in that location.

•

Ion-Exchange Resins: Contracts for $200,000 worth of improvements and extensions of ion exchange resins production facilities have been placed by The Permutit Co. A new laboratory and pilot plant will be included in the expansion program.

COMPANIES. . . .

Company stock news this week:

- Davison Chemical Co. has offered rights to stockholders to subscribe for 160,666 shares of its $1 par value common stock at $34.50 a share, on the basis of one new share for each four held.

•

New plant sites have been acquired by Mallinckrodt Chemical Works and The Canadian Rock Salt Co., Ltd.

- A 16.5-acre tract in St. Louis, Mo., has been purchased by Mallinckrodt as a reserve against future expansion requirements.
- Canadian Rock Salt Co., Ltd. will sink Canada's second dry salt mine on a site near Windsor, purchased from the Canadian Steel Corp. for about $450,000. An interest in this project is maintained by the Morton Salt Co. of the U.S.

•

Several companies' structures have been altered:

- Minerals Separation North American Corp. has acquired the operating assets of the Attapulgus Clay Co. A proposal to increase authorized stock and change the name of the company to Attapulgus Minerals and Chemical Co. was voted upon by stockholders on Dec. 9.
- Sun Chemical Corp. has established a new division, the General Printing Co., to serve buyers of printing inks, with headquarters in Cambridge, Mass.
- Filtrol Co. of California will merge into the Filtrol Corp., a Delaware concern engaged in the production of clay cracking catalysts, absorbents and decolorizing agents. The stockholders of Filtrol of California will receive three shares of the new stock of the merged company for each share held, or a total of 663,132 shares. The remaining stock of Filtrol Corp. will be issued to three companies who will offer their holdings for public distribution.

•

Consolidated Industries, Inc., West Cheshire, Conn., has completed installation of new aging furnaces.

B.F.I. OFFICIALDOM*: For old company, new lift from chemicals.

Beverage Branch-Out

Its newest product, a still unchristened anti-irritant salve, illustrates in almost poetic metaphor how the chemical subsidiary, Brown-Forman Industries, has been a balm to the financial weal of its parent company this year. Brown-Forman Distillers Corp. stock has enjoyed heightened popularity on the New York Curb recently, and one main reason for the greater demand is that its year-old BFI division, turning out photographic chemicals and other products, is expected to help boost company earnings from last year's $2.35 a share to a new peak of around $3.

Ideas From Employees: W. L. Lyons Brown, chairman of the parent company's board, envisioned the new division as a means for encouraging creative development on the part of Brown-Forman employees. That source helped the branch get started, and now its facilities are open to anyone with a new and promising idea.

BFI is still an infant, but it's growing. Its first commercial product was Old Forester Jell, a jelly flavored with Brown-Forman's principal beverage. Six months of experimentation went into this product before researchers thought of using as a base citrus pectin, which, according to Technical Director Frank M. Shipman, has "a remarkable ability to hold flavor and aroma, and has a good clear whisky color."

Next to go into production and sales were two photographic chemicals, BFi No. 20 Print Flattening and Conditioning Solution and BFi No. 30 Hypo Neutralizer. A similar product, BFi 32, has been developed for neutralizing hypo on X-ray films, will be distributed not by BFI, but by manufacturers of the X-ray machines. One such manufacturer is planning to market this chemical under the name of "Speedol," with extensive promotion in the trade press.

Latest BFI product is a salve that seems to be effective in treating victims of poison ivy and other irritations. It has been credited with curing several fungus infections, including one "jungle rot" case that had been labeled "hopeless."

Sales Soaring: The anti-irritant salve hasn't reached the market yet, but other products are reported to be moving fast. Old Forester Jell, which was thought up by a Louisville food chemist, is being retailed throughout U.S. territory under the direction of a Chicago food products distributor, Philip V. Byrne. Its sales sky-rocketed last December when it gained fashionability as a Christmas gift, and the company hopes for a 1952 repeat.

Initial offer of the photographic chemicals brought orders from more than 900 photographers across the nation. Next to come through the mail were laudatory letters, including one from the vice-president of Photographers Association of America. National sales agency for these goods is Franklin Morgan, Inc., New York. They were introduced to the trade at the national convention of the Master Photo Dealers' and Finishers' Association.

Guided by Executive Vice-President John B. Copenhefer, BFI is charting a base-broadening course and spawning a robust chemical subsidiary.

* Admiring the company's diversification products, left to right: John B. Copenhefer, BFI vice-president; George Garvin Brown, Brown-Forman president; and Frank M. Shipman, Brown-Forman vice-president and treasurer of BFI.

LEGAL . . . . . .

Chemical Firm Wins: North Carolina's State Supreme Court has held that a Moore County tobacco farmer failed to prove that dust from Geigy & Co.'s chemical plant at Aberdeen, N.C., ruined his 1949 crop. The farmer, A. L. Wilson, had claimed that the crop was killed by "highly toxic and poisonous dust" from the chemical plant; but the court pointed out that also during that season, there had been a serious drought and Wilson had hired an aviator to dust the crop with insecticide by airplane. Wilson's own witness said he "couldn't be sure what caused the injury," and the court ruled that a suit for damages "may not be based on speculation or conjecture."

•

Aspirin Overcharge: With one drug company facing possible dissolution in a State Supreme Court trial, New York State's investigation into allegedly unethical practices in the pharmacy business is continuing this week. State Attorney General Nathaniel L. Goldstein charges that in some instances, physicians and druggists have conspired to overcharge the public by selling ordinary counter items under higher prices as prescription compounds. For example, Goldstein says, one physician owning stock in a drug store wrote a prescription for 30 tablets of acetyl salicylic acid, five grains. This is simply aspirin, which can be bought at about 35c for 30 tablets, but in the case cited, Goldstein avers, the druggist charged the patient $1.50.

•

Gas Pipeline Tax: Chemical companies using natural gas for fuel or raw material may find their gas rates rising soon if their gas comes across Mississippi, or if other states adopt a similar tax on gas pipelines. Mississippi's State Supreme Court has ruled, in a five-four split decision, that this tax is legal, and that gas pipelines are in the same class as electric and other utilities that pay taxes to Mississippi even though they do business in other states. The gas pipeline companies, which had contended that such a tax was an unconstitutional burden on

interstate commerce, indicated they might appeal to the U. S. Supreme Court.

•

Not Medicine Men: Federal District Judge Irving R. Kaufman has snuffed out an FTC complaint against Liggett & Myers Tobacco Co., maker of Chesterfield cigarettes. FTC had accused L & M of "false advertising" because of the company's claims that Chesterfields were "soothing" and would not irritate the nose and throat. Kaufman holds that tobacco is not a drug within the meaning of the law, and that the company is not offering "therapeutic treatment."

•

Antitrust Team Bolstered: With its chief lawyer in the hospital because of "fatigue due to overwork," the Chicago branch of the U. S. Antitrust Division has reinforced its representation in the Du Pont-General Motors-U. S. Rubber case. Added to the Government's line-up: E. Houston Harsha and Ewart Harris. Because of the illness of Willis L. Hotchkiss, the trial has been recessed until Jan. 5 (*CW Newsletter, Dec. 6*). Seeking to enter the case on behalf of the many minority stockholders of Du Pont and G.M. is Joseph P. Savage, a Chicago attorney. Savage suggested that under the new Republican administration, whose attorney-general is expected to be Herbert Brownell, Jr., this case might be "called off."

•

Oil Charges Assailed: Government accusations against seven oil companies (*CW, Sept. 6*) are under attack this week by the Chamber of Commerce of the United States. Without discussing the merits of the charges, the Chamber asserts that the accusations that those companies have helped form an international cartel "have had the effect of encouraging nationalistic aims in several foreign countries, and are being used in those countries to stir up trouble."

FOREIGN . . . .

Nickel Sulfide/Alaska: The titles to properties staked by E. Miles Flynn for Toronto mining interests have been recognized after extensive litigation. The nickel occurrences, located in Bohemian Basin, Yakobi Island, are the largest known reserves in U.S. possessions. It is proposed to have the ore treated for the recovery of a concentrate in the 7,500-ton-daily-capacity mill of Alaska Juneau Mines.

•

Paraffin/Venezuela: Phillips Petroleum has started production in its new paraffin plant at San Roque camp. Later additions to make petroleum products such as high-octane gasoline and diesel oil have increased the cost of the plant from $3.3 to $6 million. The 2,270-ton capacity represents about half of the current annual consumption in the country.

•

Rayon/Venezuela: Production of rayon has begun at Celanese of Venezuela's new $6-million plant, built in 11 months. The largest Celanese factory in South America, the new factory will produce five to six million pounds of rayon yarn annually. Approximately 55% of the capital of the new company was provided by Venezuelan investors.

•

Aluminum/African Gold Coast: A $400-million aluminum metal plant with a capacity of 210,000 metric tons may be constructed next year in the African Gold Coast. The United Kingdom, the Gold Coast government, Aluminum, Ltd. of Canada and the British Aluminum Co. will undertake the project. The building of a dam across the Volta river, included in the program, will eventually provide a source of cheap electricity which would be available, five years after the start of operations, for an aluminum smelting plant.

Eye on Future

With the nation's cupboard of natural resources no longer bulging with what were thought of 100 years ago as "inexhaustible" supplies, leaders in government and industry are plotting steps to conserve and develop the country's raw materials in the light of last summer's report by the President's Materials Policy (Paley) Commission.

One move in this direction is a citizens' conference to be held in Washington next March 25-27, with the blessing of both President Truman and President-elect Eisenhower. Arranging this conference is Resources for the Future, Inc., a new non-profit corporation established with the help of the Ford Foundation to support education and research in conservation of natural resources.

Progress, Vigor, Security: Heading this new organization is Horace M. Albright, president of United States Potash Co. and former director of the National Park Service. He says Resources for the Future will undertake long-range programs "to assure the resources essential to the progress, vigor, and security of the nation."

Among the data that will guide the conference next March are the Paley Commission report, the earlier report of the Water Policy Commission, and related studies by the Hoover Commission. The Paley report calls on the chemical process industries to help solve the country's materials problems by finding ways to use plentiful materials as substitutes for scarce ones, learning to recover materials now being wasted, and working with lower concentrations of useful materials.

ALBRIGHT: New look-out on resources.

T. R. Set Example: Referring to a similar conference called by President Theodore Roosevelt in 1908, Eisenhower comments that it's "high time" that the conservation conference "should be reborn in a mid-century setting." He hopes for the cooperation of all governmental and private agencies in the meeting.

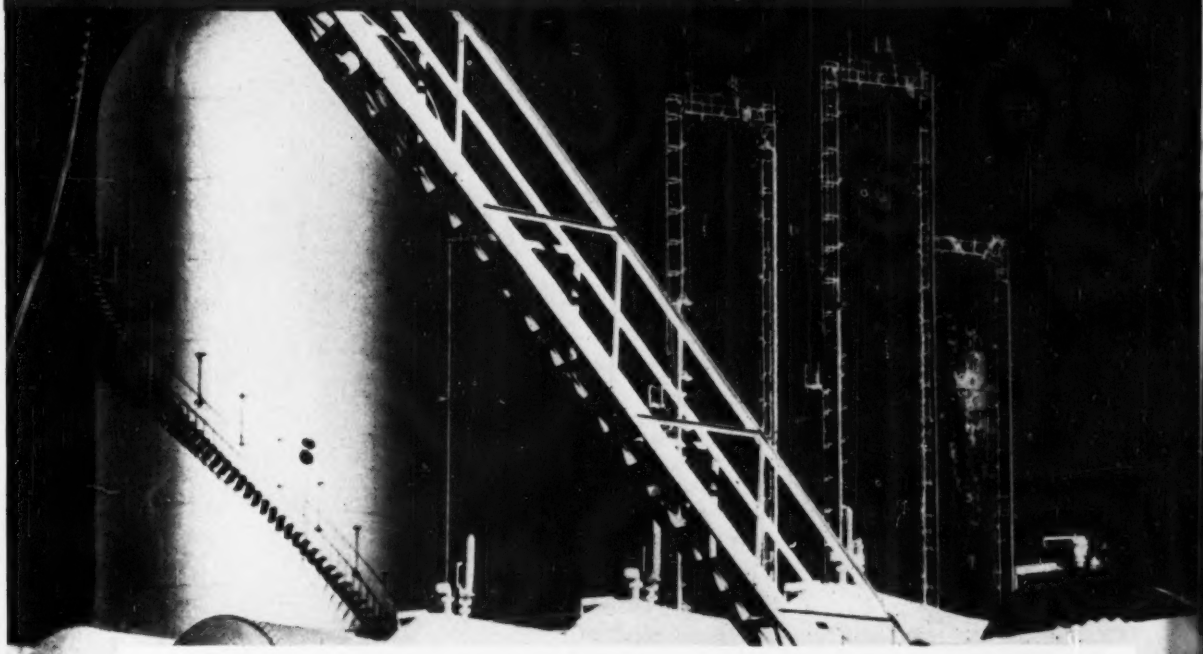
Truman has assured Albright that "your organization will indeed be rendering a public service in the finest tradition by providing a forum for the discussion of issues in the resources field."

"The report on materials policy," Albright warns, "points out that, with less than 10% of the free world's population and 8% of its land area, the U.S. consumes half the free world's volume of materials. We have completed the transition from a raw material surplus nation to a raw materials deficit nation, and from a net exporter to a net importer of many of our vital materials. We have been 'mining out' our renewable resources, and restoration, where possible, is slow and costly."

NSRB Readies Plans: Meanwhile, 22 federal departments and agencies whose responsibilities include keeping an eye on various materials' supply-and-demand situations have submitted

IN THE CHEMICAL INDUSTRY

There's more to CORROSION than meets the eye



Sometimes VISIBLE...Often HIDDEN...Corrosion Strikes in Every Plant

This year, the Chemical Industry will pay millions of dollars for needless losses created by corrosion...*yet much of this corrosion may never be discovered* until it's too late to protect—and time to pay!

Corrosion is readily detected when it appears as rust layers or failing paint on exposed surfaces. But, by far, the major costs of corrosion come from hidden areas—where only minute inspections and constant care can prevent costly failures.

YOU LOSE IN A "WAITING GAME"

Don't wait for rust or other visible signs to appear. Visible or hidden, corrosion will destroy costly equipment... halt production... cause unnecessary maintenance shutdowns... and contaminate valuable products. Thus, corrosion dips deep into your profits as it creates needless losses totaling thousands of dollars.

YOU CAN PREVENT NEEDLESS WASTE

Check your plant for corrosion's presence. Double-check areas that may be vulnerable to *hidden corrosion*. If you would like help, an AMERCOAT Field Engineer will gladly assist you in making a thorough analysis. There is no obligation.

What is AMERCOAT?

AMERCOAT is a method of corrosion control. Not just a single product, but a complete LINE of coatings, individually formulated to solve or control specific industrial corrosion problems.

FOLLOW THE LINE OF [illegible] PROTECT WITH AMERCOAT

AMERCOAT CORPORATION

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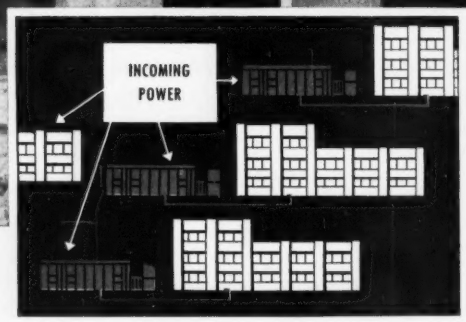
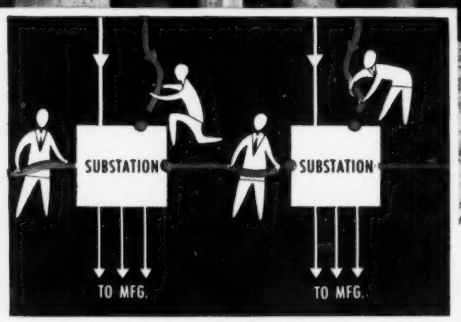
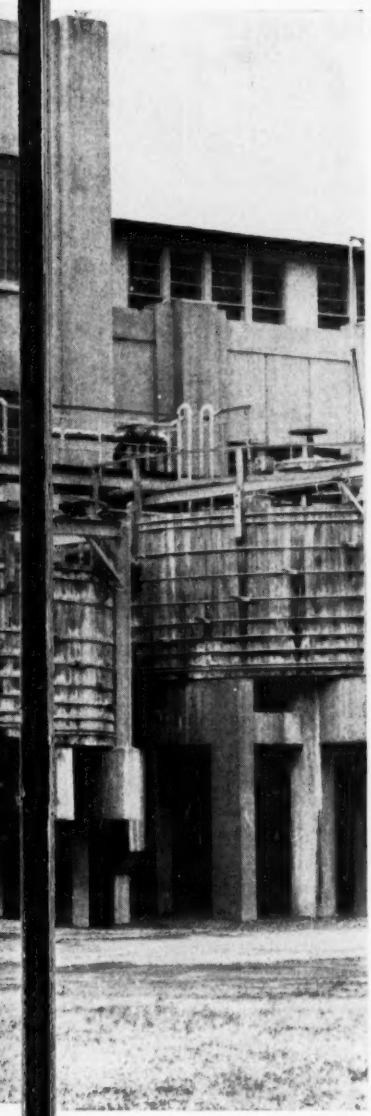
They did what you can do to produce more





To handle the big Willow Island plant expansion, American Cyanamid spotted 10 power substations throughout the manufacturing area. When new buildings are added, new substations will be installed without interfering with production in the existing buildings. When the plant is expanded, the new substations will also be connected into the "secondary network". This improves system capacity and reliability because substations share the load. If you want benefits like these, have Westinghouse help plan *your* next power system.

Here's a Power System that provides for wide plant expansion



American Cyanamid's new plant at Willow Island, West Va., has only five manufacturing buildings now, but future plans call for many more. The problem here was planning a power system that would be highly dependable and efficient today . . . and still provide for all this future expansion.

Westinghouse and American Cyanamid engineers worked out a system

The answer was in providing a system of power centers that could be quickly and easily expanded into a "secondary network" power system as the plant grew.

Network system design prevents power outages

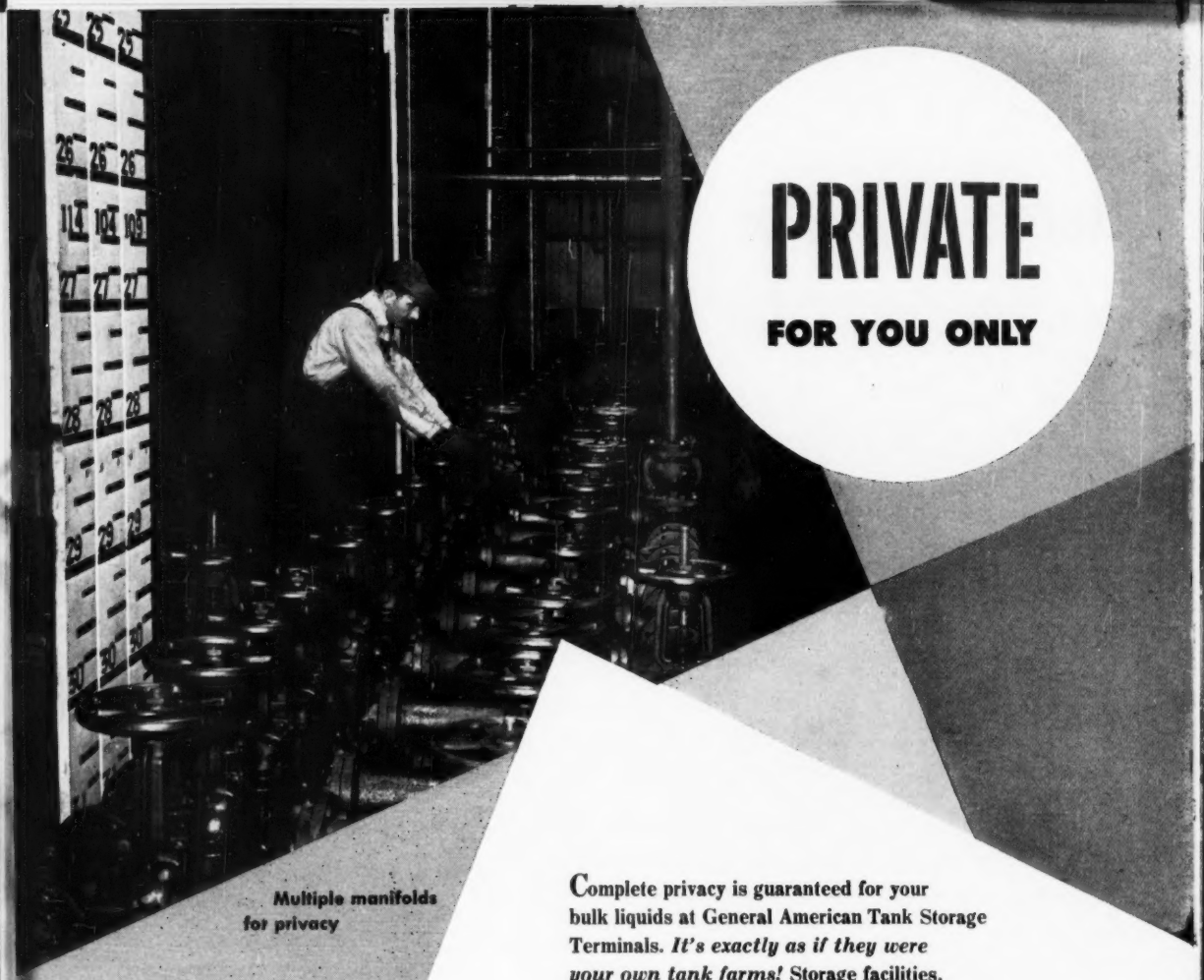
This plant can't take chances on a power failure and this network system gives them exceptional reliability. If there's trouble on any feeder, they can switch to another. If any substation should go out, its building is automatically served by the other substations through the cross connections. For more insurance, each substation has twin transformers and if one needs service, the other handles the load.

Call Westinghouse early on your next project

Careful planning can give you advantages like these when you're building, expanding or modernizing your process plant. We would like to help you do this planning. Call in Westinghouse *early* on your next project. Westinghouse Electric Corp., Box 868, Pittsburgh 30, Pennsylvania. J-94905

YOU CAN BE SURE.. IF IT'S
Westinghouse

EQUIPMENT FOR
CHEMICAL PROCESSING



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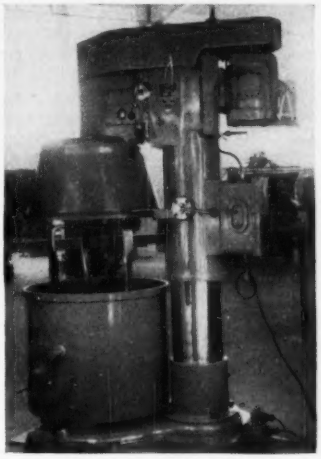
numerous suggestions to the National Security Resources Board, and that agency has selected 52 of those recommendations to turn over to the new administration.

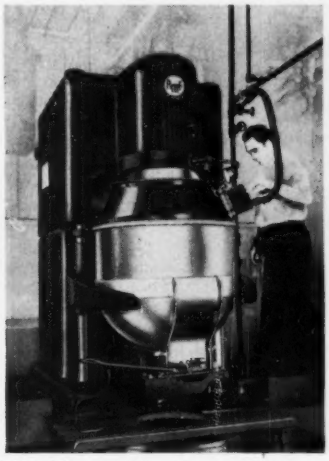
Fourteen of the recommendations are in the category of government aid to private enterprise, including services that could be provided by statistical or research agencies. NSRB endorses three suggestions aimed at improving the economic environment for business, involving such fundamental policies as the tax structure.

Other recommendations on which NSRB wants "immediate action" pertain to:

- Modification of three regulatory measures.
- Development and use of materials on which government participation is required, such as nuclear materials and hydroelectric resources.
- Development and use of publicly owned resources.
- Promotion of efficient use of resources of which the federal government is the main buyer.
- Development of world resources through modification of U. S. tariff laws.
- Development of an adequate resources stockpile in case of war.

National policies on these matters are sure to affect the CPI in a multitude of ways; in some instances, policy changes could spell life or death for certain companies. With such decisions in the making, it's to be expected that chemical processing firms will be well represented at the citizens' conference next March.





RIVAL MIXING MACHINES*: In industrial competition, East vs. West.

'Perlon' in Cold War

Big work-horse in the chemical industry of Stalin's disciplined domain is East Germany, whose chemical plants and equipment factories are being rebuilt and enlarged under a five-year plan aimed at providing maximum help for industrialization of the other satellite countries and Mother Russia. Guided by "advice" from Moscow, commissars in the USSR zone of Germany have been expanding their chemical industry in certain predetermined directions so that it will best fit in with the Communists' overall plan for making the Red realm industrially strong.

Plastics, Perlon, Potash: Trends in East Germany's chemical industry could be seen in the recent Leipzig Fair, at which the chemical commissars displayed their latest achievements in a bid for world-wide trade and recognition. These are among the developments for which those commissars now are vying for medals:

- Invention and production of various kinds of plastics; *e.g.*, one that is said to be suitable for making automobile bodies, several with unusual acid-resisting properties, and one for dental and facial surgery.
- Greatly stepped-up increase in output of synthetic fibers, especially perlon, a nylon-type material derived ultimately from phenol.
- Production of potash at the rate of 1.5 million tons/year, and marketing of potash fertilizer mixtures that include up to 26% magnesium sulfate

* At left, East German mixer made by state-owned "Nagema" (nationalized chemical industry) factory in Heidenau, largely for export; at right, Glen "340" mixer made by American Machine & Foundry Co., New York.

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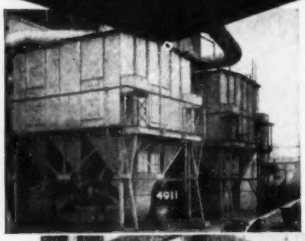

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New Acid Process: Another project on which the Communist chemists are claiming success is production of sulfuric acid from magnesium sulfate. A plant is known to be operating at Leuna, former I. G. Farben dye center near Leipzig; and the sulfate (as kieserite) is abundant in the vast potash deposits of the Harz Mountains. This process has been officially hailed as the beginning of a "new phase" in the East German chemical industry. The five-year plan calls for 1955 sulfuric acid production of 450,000 tons, about double the 1950 level.

Chemical process equipment on exhibition at the Leipzig Fair included an automatic, drum-type machine for putting chrome plating on small nickel-plated parts; a rotary-process chrome-plating plant specially designed for the bicycle industry; a three-cylinder refining machine for treating the paste in preparation of plastics, paint and printing inks; a counter-current extractor for use in a de-phenolizing plant; a material testing apparatus with a work range of minus 120 to 100 degrees C. and from low vacuum to 275 atmospheres pressure; and the planetary mixing and kneading machine pictured on page 23. (Comparison of the East German "Nagema" machine with the "AMF" model shown at the right: capacity–Nagema, 55 gallons, AMF, 85; speeds–Nagema, "high and low," AMF, 45 to 325 rpm; horsepower, Nagema, 7.39, AMF, 7.5; net weight, Nagema, "just less than one ton," AMF, 1,105 lbs.)

Trolley-Car Tested: One of the new plastic materials for which the East Germans are taking bows is "Silikon," understood to be of great strength and to have excellent electrical insulating properties. In a recent test in Leipzig, promoters announced that a piece of this material remained undamaged after a trolley car had passed over it.

"Igurit S" and Igurit AS" are being widely used in East Germany as absorbers in the manufacture of acids, and are said to be resistant to many reagents. They are also finding application in extracting apparatus, heat exchanges, containers and rectifying columns.

Principal East German advance in plastics for dental and facial surgery is Piacryl-D, a polymer of methyl methacrylate that can be worked without plasticizers (in short supply in Germany) or hardeners.

Pool-Hall Boon: Other new plastic products are Laktum, a phenol derivative that is used in bristles and as the starting point for making perlon; Didi (dicyandiamide), a molding powder; and a phenolic resin with the same specific gravity as ivory and which is being used for billiard balls, buttons, and ornaments.

Perlon stockings have become an important export item, and perlon silk has just been introduced into the knitting and weaving industry. Its makers describe it as strong, light, quick-drying and non-creasing. It's been used in lines for deep-sea fishing, and, impregnated with rubber, in the track of a new 60-hp tractor. In the latter use, it's said to save 3,700 pounds of steel.

Another synthetic fiber product being exported is hosiery from a mixture of acetin and Viskose artificial silk. Production goals for 1955 are 34,500 tons of rayon, a threefold increase, and 126,800 tons of other synthetic fibers, a tenfold jump over the 1950 output.

Handicapped by a lack of many basic raw materials like coal, iron, sulfur and copper, East Germany is making heavy demands on its chemical industry to fill the breach by finding substitute materials and by finding new uses for waste products. To the extent that it succeeds, it will bolster the economy of the Soviet bloc and possibly make inroads on international trade for which Western nations are now the suppliers.

LABOR. . . . . .

Non-Coverall Unions: The boys in the business suits and white shirts have been showing more interest in organizational activities this year, chemical processing companies are perceiving this week.

- In Canada, members of the Engineering Institute of Canada heard a discussion of the possible restriction of immigration of engineers into Canada as one means of trying to force engineering salaries upward.
- At Port Arthur, Texas, some 20 employees in the sales division of Texaco were threatening to set up picket lines around the company's refinery in protest against Texaco's alleged refusal to meet union demands for higher pay.
- Out in Seattle, the National Professional Association of Engineers, Architects and Scientists voted to discontinue all association activities so that member groups may join the Engineers and Scientists of America.
- In Chicago for its 20th annual

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meeting, the Engineers' Council for Professional Development planned to continue and intensify its program "to enhance the professional status of the engineer through cooperative efforts . . . in dealing with technical, economic and social problems."

•

Unions in Ferment: These are tumultuous days in the American labor union movement, as witness these incidents involving workers in chemical and allied industries:

• Although the Oil Workers and the Rubber Workers provided what seemed to be the decisive support in Walter P. Reuther's eager drive for the CIO presidency, the recent deaths of CIO and AFL chieftains Phil Murray and Bill Green led to at least the shaky start of a "draft-Lewis" plot. The Rubber Workers' big Local 2 at the Goodyear plant in Akron has endorsed Mine Worker President John L. Lewis as the man to unify the unions.

• Most of the approximately 500 members of International Chemical Workers Union (AFL) apparently are still determined to hold out for their demands for an outright 5½¢/hour wage increase and an escalator clause hitching wage rates to the cost-of-living index. They've been on strike at General Aniline's dye plant in Rensselaer, N. Y., for nearly three months now, and recently turned down a company offer that included an immediate 1¢ boost to be followed by a 3¢ jump next June. Union officials said the vote to reject that proposal was 422 to 60.

• One chemical company has had to close down a project leaving some 447 men out of jobs. Wyandotte Chemicals Corp. says the recently negotiated contract between the United Mine Workers and the Northern Coal Operators has pushed operating costs so high that it's had to shut down its Francis Mine at Curtisville, Pa., where the company formerly dug coal for its South Plant boiler house. Now, Wyandotte is buying "a better grade of steam coal for less than we could produce the coal from our Francis Mine."

• Warning that the union's program "is too important to depend on Republican promises," officers of the United Gas, Coke & Chemical Workers (CIO) are urging their members to vote in favor of the proposed 25¢ increase in per capita membership dues. Otherwise, says President Elwood D. Swisher, the union will have to make further retrenchments in personnel, in services rendered to local unions, and in legislative activity.

Chem Plant Polls: This week, it's the United Gas, Coke & Chemical Workers (CIO) who can boast of triumphs in bargaining elections at chemical plants:

• Employees of Monsanto's Port Plastic Plant in Addyson, Ohio, have picked Gas-Coke over the ICWU in an NLRB balloting. Gas-Coke received 31 out of 59 ballots cast.

• Scoring a virtual clean sweep, Gas-Coke has garnered bargaining rights at the E. & F. King Co. paint plant in Norwood, Mass., with 22 votes out of a bargaining unit in which 23 persons were listed as eligible. The 23rd worker is on military leave, serving in the armed forces.

• Gas-Coke has formally requested the NLRB to conduct an election at Du Pont's plant in Buffalo, N. Y., where the former independent Cel-O-Seal & Sponge Workers Union recently bowed out of existence with its officers recommending that the group apply for a Gas-Coke local charter.

• On the other hand, the AFL Chemical Workers have strengthened their standing in the ordnance field with a double-barreled victory in the Midwest.

ICWU has just chartered a new local to represent more than 600 employees of the Nebraska Ordnance Plant at Mead, Nebr., and has signed a contract at that plant. ICWU members at the Cornhusker Ordnance Plant, Grand Island, Nebr., recently received a total of $314,194.78 in back pay under a contract that was lately approved by WSB.

•

Wages Still on Up-grade: Latest labor contracts in the CPI call for ever higher pay scales:

• Corhart Refractories of Louisville, Ky., will boost wage rates for 185 members of the AFL Firemen & Oilers Union by 10¢/hour under a new one-year contract formulated in a continuous 26-hour negotiating session. It also provides for a cost-of-living "adjustment" at the end of the first six months.

• American Paint of Birmingham, Ala., has agreed on what the CIO Gas-Coke union calls "an unrestricted union-shop" contract that provides for a 5¢ hike for hourly-paid employees, a 6¢ rise for men on the incentive-pay plan, and an automatic 5¢ increase next Oct. 1. Among the 11 changes: minimum hourly wage rate nudged up from 86¢ to $1.20; pay for time lost because of injury.

• Linde Air is raising wages by 10¢ an hour on all hourly-rated jobs at its Prest-O-Lite plant in Speedway City,

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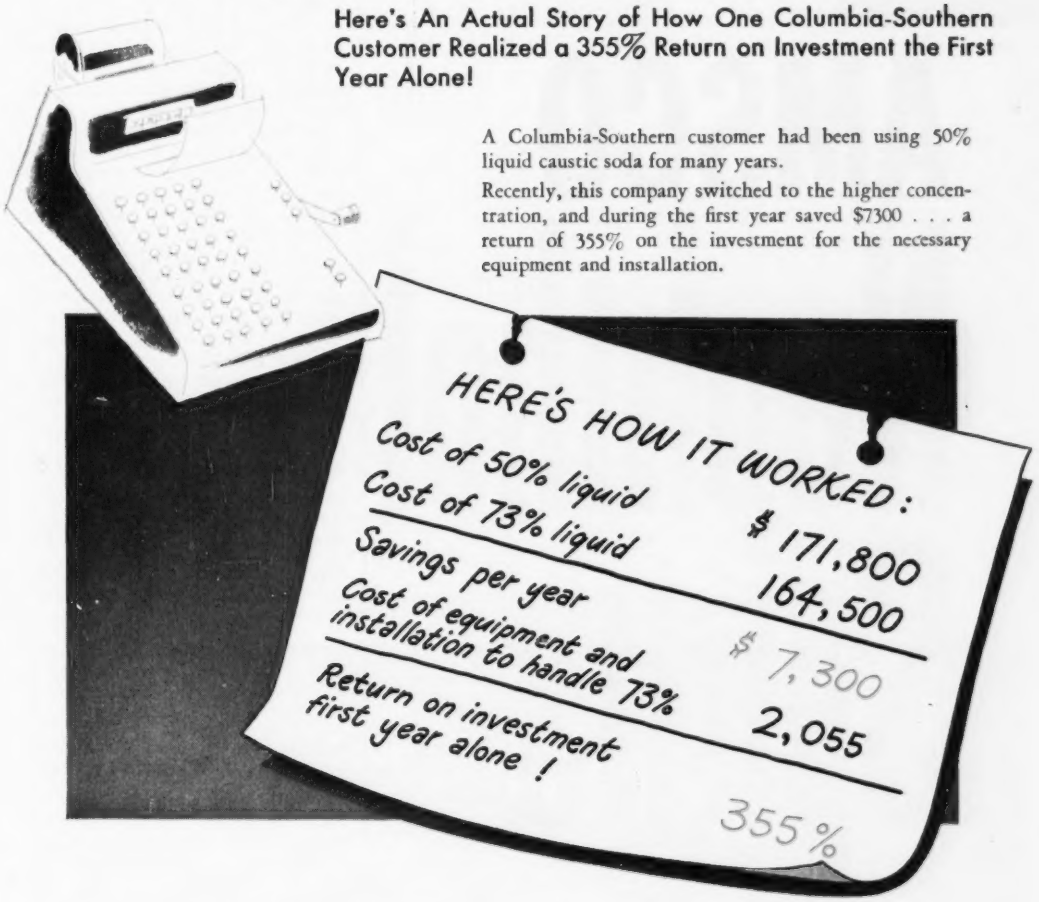
Here's An Actual Story of How One Columbia-Southern Customer Realized a 355% Return on Investment the First Year Alone!


HERE'S HOW IT WORKED:
Cost of 50% liquid $171,800
Cost of 73% liquid 164,500
Savings per year $7,300
Cost of equipment and installation to handle 73% 2,055
Return on investment first year alone! 355%

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Recently, this company switched to the higher concentration, and during the first year saved $7300 . . . a return of 355% on the investment for the necessary equipment and installation.

And aside from the increased profit, this customer cut down the number of man hours required for unloading because fewer cars of 73% were needed to supply the same tonnage of caustic.

The method used in unloading 73% is the Columbia-Southern patented process that incorporates unloading and diluting in a single operation. The assembled unit is compact and relatively inexpensive.

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Ind., under a new contract with Gas-Coke. Also in the pact: 6¢ more on piece-rated jobs, six-month wage reopener on 60-day notice; and meal allowances.

• Master Etching Corp. of Englewood, N. J., will pay 7½¢ more per hour to production and maintenance employees, members of United Mine Workers' District 50, and sponsor a medical-surgical insurance plan at no cost to the employees.

• The Glidden Co. is adding 5¢/hour to pay rates at its plant in Valdosta, Ga., under a new contract with the AFL Chemical Workers. It also includes provision for a disability benefit plan.

• Argonne National Laboratory, Lemont, Ill., has granted a 15¢ hourly pay increase to members of Gas-Coke Local 455. Shift premiums will be 5, 10 and 15¢; three weeks' vacation will be allowed after one year of service; and each worker is entitled to seven days off each year for "personal reasons."

KEY CHANGES. . .

Hugh S. Ferguson: To president and chief executive officer, Dewey and Almy Chemical Co., Cambridge, Mass.

Max E. Bretschger: To president, Buffalo Electro-Chemical Co., Inc., Buffalo, N.Y.

Clyde O. DeLong: To general manager, industrial and general sales products division, B. F. Goodrich Co., Akron, O.

J. Burton Ayres: To a director, Pittsburgh Coke and Chemical Co., Pittsburgh, Pa.

Earl Beck: To executive vice-president, operations, Eli Lilly and Co., Indianapolis, Ind.

KUDOS. . . . . .

Charles Allen Thomas: President of Monsanto Chemical Co. and chairman of the board of American Chemical Society, will receive on Jan. 16 the Perkin Medal of the American Section of the Society of Chemical Industry for 1953.

DIED. . . . . .

Joseph F. Rudolph: President of Dodge & Olcott, Inc., Nov. 23, after a short illness.

Vladimir Ipatieff: Chemist for Universal Oil Products Co. and teacher at Northwestern University's Technological Institute, renowned for discoveries related to high octane gasoline, in Chicago, Nov. 29.

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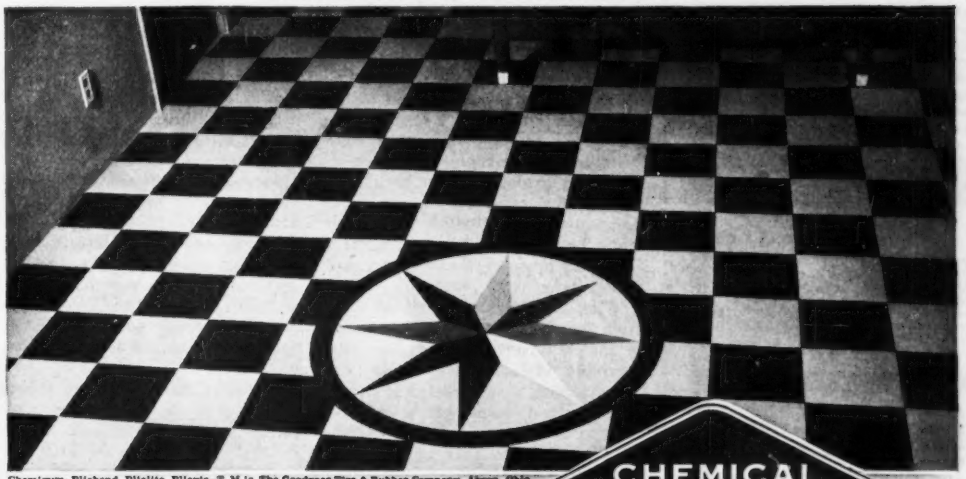

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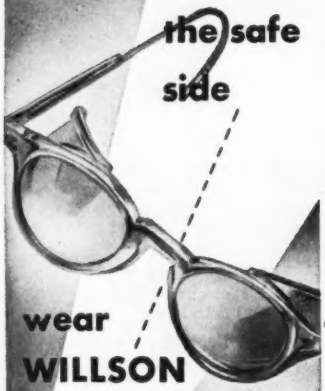

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RESEARCH . . . .

High Points in the New Patent Law

What They Are	What They Mean
• The term "process" includes a new use of a known process, machine, or material.	New uses of known products and processes may be patented.
• Patentability is not negatived by the manner in which the invention was made.	Scientific research is now officially recognized as a valid method of invention.
• An assignee or person with a proprietary interest in an invention may file an application in lieu of the inventor.	A company is not deprived of an invention if the inventor refuses to sign an application for a patent
• Principle of contributory infringement, rendered almost meaningless by the courts, is written back into law.	You can sue the seller of an article that is a material part of a product or process you have patented.

Blowing the Cobwebs Off

The new year is coming fast; and with it comes the first new comprehensive patent law in 82 years. For more than three-quarters of a century in the making, the new law—tagged Title 35, United States Code—is sparking remarkably little advance activity among industrial research directors and legal executives. And, in truth, not very much boning up is necessary. Congress' handiwork is in essentially the same form as the existing law with only a few important changes.

It's more of a zephyr than a gale. But Title 35 does manage to blow a few of the cobwebs off our long-dormant patent legislation. The result might best be described as a liberalization in favor of the inventor and patent owner.

What's in a Name: Chief substantiation for this point of view is found in the new law's treatment of patentability of new uses. Under the existing code, a new use of a known "art, machine, manufacture, or composition of matter" cannot be patented. Title 35 neatly changes all that by trading the word "art" for "process." And the word "process" is defined as ". . . process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material."

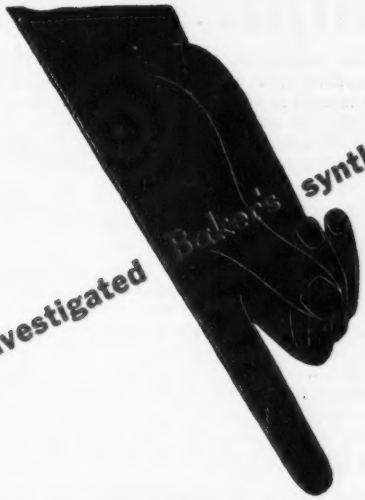
What it all comes down to, then, is that new uses of old products and processes can be patented if they fulfill the basic legal requirements (*i. e.*, such uses must be the result of invention, not be obvious to one skilled in the field).

Significance of this "new use" provision isn't hard to discern. It should stimulate research, open whole new areas of potentially rewarding research. But it also imposes an added responsibility on the investigator and the research director. They will be in the unenviable position of having to forecast all conceivable uses of products (and processes) they are trying to patent: an omission could eventually be extremely costly.

Moreover, the research director must constantly be on the lookout for new uses for his company's products, get there first and stake a claim. Of course, in some cases, a patent for a new use of a known material may be of little more than token value. Even under the new law, the owner of a patent on a material retains control at the source.

Matching the Brainstorm: Whether it needs it or not, research gets a reassuring nod of approval from Title 35. Judicial opinions, in the past, have denied the patentability of the products of scientific research by a staff of technically trained individuals, the idea being that "discovery which is the result of step-by-step experimentation is not invention." By this kind of thinking, only an invention which arises from an idea coming like a bolt from the blue is eligible for patenting.

With more than a little justification, the new law formally ranks research



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3. Sample: Powder ☐ Flake ☐

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Send for your sample of CEN-OLEIC #1040 to make your own evaluation tests.

This new all-vegetable Oleic Acid has a color comparable to White Oleic, with superior color stability. The poly-unsaturate content is very low and results of the Mackey tests show over 6 hours to reach 105° C.

Study these specifications with relation to your special Oleic Acid compounding needs:

Iodine Value	84-92
Acid Value	191-195
Saponification Value	192-196
Titre: °C	15-20
Color (Lovibond 5¼")	15Y/3R max.

Other Century Oleic Acids

Century 1030 White Oleic (U.S.P.)	Titre 3- 5°C
Century 1020 White Oleic (U.S.P.)	Titre 8-10°C
Century 1005 Distilled Oleic	Titre 3- 5°C
Century 1010 Distilled Oleic	Titre 8-10°C

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with the brainstorm, clearly states: "Patentability shall not be negatived by the manner in which the invention was made." In effect, however, Title 35 does not make an honest woman of research; it only voices for the record the overwhelming body of opinion and precedent.

The powers of industrial firms with respect to discoveries and inventions made in their behalf are also broadened. Patent agreements between employee and employer will, after the start of the new year, have new teeth. As the law stands today, a patent agreement would not prevent a researcher from depriving his company of an invention if he does not choose to file for a patent. And, in all probability, the courts wouldn't force him to file.

All that will soon be changed. The new law authorizes an assignee or a person who "shows sufficient proprietary interest" to apply for a patent on behalf of the inventor. A firm, for example, making such an application must show, in the words of the law, "that such action is necessary to preserve the rights of the parties or to prevent irreparable damage; . . ." The final patent, in any case, is granted to the inventor.

Infringers Beware: Another highlight of the new law, which further tips the balance in favor of the patent owner, is the section dealing with infringement of patents. Broader protection is afforded by a new provision which states: "Whoever actively induces infringement of a patent shall be liable as an infringer." And the principle of contributory infrigement, reduced to near-impotence by court decisions, is reaffirmed.

What the new law on contributory infringement comes to is, simply, this: Any one selling an unpatented device for use as part of a patented invention is liable as an infringer, provided the device is an integral element of the invention and has no other substantial commercial use. A seller of an unpatented rubber antioxidant, for example, would be an infringer if the antioxidant was the active agent in a patented method of retarding the oxidation of rubber. Under the present law, sale of the antioxidant would not be considered an infringement.

Aside from its treatment of such basic tenets as qualifications for patentability, method of invention, infrigement, etc., Title 35 embodies a number of other revisions and restatements of the spirit and letter of the law.

The most prominent of these:

• **Corrections**—Errors of a minor or stenographic nature may be corrected after the patent has been issued. Previously, corrections of this type could be made only if the errors were the fault of the Patent Office.

• **Licensing**—A patent holder, under the new law, can license firms to supply component materials or parts of a patented invention even though the licensee does not manufacture the complete invention. In the past, this procedure was viewed with disfavor by the courts. The change materially increases the potential income from patent licensing.

• **Antitrust**—Companies which sell essential parts of a patented invention will no longer place their patents in jeopardy for misuse under the antitrust laws. Heretofore, a firm could only sell a complete invention (process, chemical preparation, etc.); any attempt to derive a profit from the sale of component parts was construed as misuse, would defeat the patent under the antitrust laws.

• **Joint inventors**—Despite the refusal of an inventor to join in applying for a patent, application—under Title 35—can be made by a joint inventor on behalf of both.

• **False marking**—The terms "patent applied for" or "patent pending," often used irresponsibly as a scare device, will no longer be allowed unless a patent application has actually been applied for.

• **Validity**—Failure of the Commissioner of Patents to require an application to be restricted to one invention shall not cast doubt on the validity of a patent.

Expert opinion on the new patent law is pretty much in agreement. The consensus is that research is due for a boost, patents will be generally strengthened. These points are elaborated in the statements of two prominent patent authorities.

H. A. Toulmin, Jr., of the Dayton (Ohio) law firm of Toulmin & Toulmin, judges ". . . that the recent trend [of the Federal Courts] to sustain patents as valid and infringed . . . will now be accelerated and a great many more patents will be sustained than at any time during the last quarter century."

Robert Calvert, New York patent expert, opines: "The new law should stimulate research and invention, particularly in new uses. But the exercise of business judgment in administering patent policy will be no less important under the new law than under the old."

Finally, cautions Calvert, don't take Title 35 strictly at its face value. He points out that ". . . a few years of interpretative court decisions will be required for a full understanding of the exact intent of certain provisions."

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Keeping Up With Cumene

Phenol from cumene is an accomplished commercial fact. But process research is still very much alive. Two new patents stand as indelible proof of the flurry of activity in the development of this newest route to one of industry's oldest standbys.

The first (U.S. 2,619,509), assigned to Allied Chemical and Dye Corp., covers a method for accelerating the oxidation of cumene to its hydroperoxide. According to the terms of the patent, cumene in liquid phase is contacted with elemental oxygen at temperatures between 100 C and 130 C until not more than 5% (by weight of the reaction mixture) of cumene hydroperoxide has been formed.

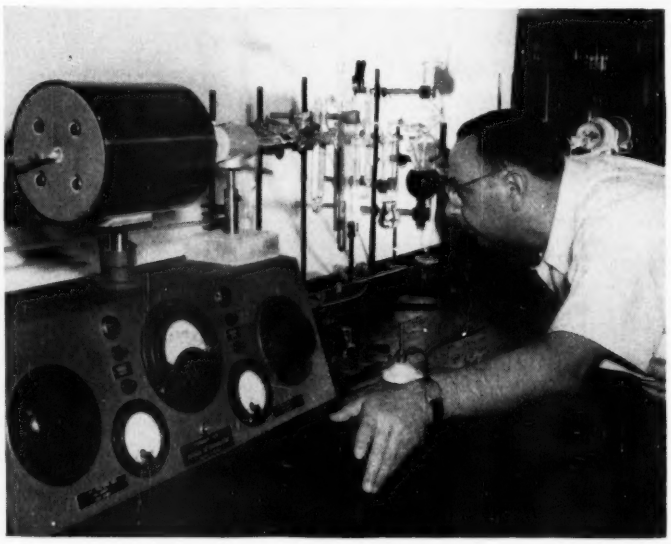
Cumene is then treated with a strong base and oxidized, again with elemental oxygen, at about 110 C until the concentration of the hydroperoxide in the reaction products is at least 11%.

"Manufacture of isopropyl benzene hydroperoxide" is the designation of the second patent (U.S. 2,619,510) assigned by a group of British researchers to Hercules Powder Co. Bearing a close resemblance to the Allied technique, the Hercules method goes by way of ". . . oxidation of isopropyl benzene [cumene] in the liquid phase by means of molecular oxygen . . . in the absence of added catalysts."

The oxidation is carried out at a temperature between 105 C and 135 C with an excess of oxygen. Explosion risk is materially reduced by the introduction of steam into the gas space above the reaction mixture.

•

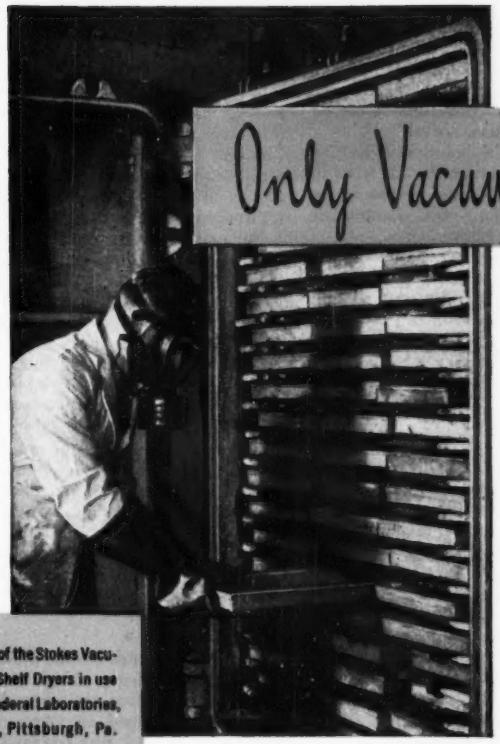
Instrument Expansion: Defense Production Administration has just sounded the call for a general expansion of scientific instrument production. Acting Administrator Ralph S. Trigg has approved an interim expansion goal of $45 million capital investment in manufacturing facilities to be reached



Close Look at Micro Oxygen

TEXACO RESEARCHER Morris Dundy checks rate of flow of nitrogen in micro-combustion train used for the direct determination of minute quantities of oxygen. Essentially the well known Unterzaucher-Schutze technique, the method used at the company's Beacon, N.Y. laboratories, was perfected by Dundy and co-researcher Ervin Stehr, is an improvement on its progenitor. The Dundy-Stehr modification uses a gravimetric procedure to get around abnormally high results which frequently arise from hard-to-correct interferences with the conventional iodometric method of analysis. Determination of oxygen is a perennial analytical puzzle.

Only Vacuum dries to 0.35%



One of the Stokes Vacuum Shelf Dryers in use at Federal Laboratories, Inc., Pittsburgh, Pa. Operators wear gas masks when removing trays of the tear gas crystalline solids processed in Stokes Dryers.

In the manufacture of tear gas, a crystalline solid is produced, the moisture content of which must be reduced to 0.35% without permitting the volatile solid to sublime as an irritant gas.

Vacuum drying of tear gas solids is done by Federal Laboratories, Inc., Pittsburgh, Pa., in Stokes Vacuum Shelf Dryers at 100° F. A vacuum of 2 to 10 microns is used to achieve the desired dryness while maintaining safe working conditions.

Trouble-free service by Stokes equipment in Federal Laboratories assures constant high production of the active material for tear gas devices used by police and military.

Many materials which are sensitive to heat, evaporation or oxidation, and which cannot be agitated, are best processed in Stokes Vacuum Shelf Dryers. Chemical salts, dyes, food extracts, glues, rubber and explosives are typical products which can be dried safely, rapidly and economically in vacuum at low temperatures.

Available in many capacities, Stokes Vacuum Shelf Dryers are designed for drying products which must not be agitated or require no mixing.

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*Patents applied for by H. J. Hersey, Jr. and Pulverizing Machinery Company

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by Jan. 1, 1955. According to D.P.A., this will require "at least $18 million of expansion beyond that for which applications for certificates of necessity . . . have been issued."

Reason for the boost, says D.P.A., is a backlog of orders for all types of scientific instruments, created by defense-inspired adoption of automatic continuous processes.

Scientific instruments, under the goal, include all measuring, controlling, testing, laboratory, optical and related devices. Instruments required, states D.P.A., represent a substantial portion of the capital investment in plants designed to produce aluminum, synthetic rubber, explosives, pharmaceuticals, etc.

•

Helpful Blues: A new micro-determination for piperonyl butoxide, the pyrethrin synergist, has been developed by researchers of National Distillers Chemicals Corp. (New York, N.Y.). The method has been applied successfully to pyrethrin-piperonyl butoxide mixtures in dusts, oil solutions and paper coatings. Briefly, the procedure hinges on the appearance of a blue color on heating a solution of piperonyl butoxide with tannic acid (dissolved in a mixture of phosphoric and glacial acetic acids).

•

Double Achievement: Some of the mysteries of actithiazic acid, a new antibiotic, are mysteries no more thanks to the efforts of research groups at Chas. Pfizer & Co. (Brooklyn, N.Y.) and Abbott Laboratories (North Chicago, Ill.). Researchers have identified and synthesized the new antibiotic: It's 4-thiazolidone-2-caproic acid; it was made by reacting thioglycolamide with n-heptaldehyde, esterifying the resulting DL-2-hexyl-4-thiazolidone, saponifying the ester. Product of the synthesis was identical with the natural antibiotic.

•

No Windows: The Navy's new Radiological Defense Laboratory, now going up in San Francisco, may set the style for future installations devoted to nuclear experiments. It's a six-story, windowless structure designed for maximum protection against atomic attack. According to Navy civil engineers, added features of a windowless building are more wall space, lower construction and maintenance costs. "Claustrophobia," says the Navy, ". . . will be neutralized by special lighting and color treatment."

•

Neophyte: Experimental samples of furfurylamine (2-furanmethylamine) are newly available from Commercial Solvents Corp. (New York, N.Y.). Because of the newness of the compound, detailed information on its chemical behavior is lacking. But Commercial Solvents ventures that furfurylamine will undergo most reactions of primary amines. Potential applications, says the company, are in the synthesis of dyestuffs, pharmaceuticals, rubber and petroleum additives.

•

Discovery: New ground in the development of antibacterial agents was broken recently by C. M. Suter and fellow researchers of Sterling-Winthrop Research Institute (Rensselaer, N.Y.). Their discovery: antibacterial activity of a number of racemic threo-2-dichloroacetamido-1-(4-hydrocarbonyl-mercaptophenyl)-1,3-propanediols and corresponding sulfur-containing derivatives. The methyl analogs in both the sulfide and sulfone series showed outstanding activity against several pathogenic organisms.

•

Unforeseen Dividend: Studies at North Texas State College, aimed at the development of new antituberculosis drugs, have returned an unexpected dividend. The work was centered on the indicated anti-TB activity of compounds containing the (4-alkylpiperydyl) configuration. No significant anti-TB potency was obtained. But promising antifungal and amebacidal properties were apparent. Especially active are 1-(4-aminophenacyl)-4-octyl pyridinium bromide and the 5-nonyl analog.

•

In the Ring: Tracerlab, Inc. (Boston, Mass.), is credited with the development of a practical method for preparing radioactive benzene, toluene and benzoic acid—the latter two labeled in the aromatic ring. The tracer aromatics should be of greatest value in the investigation of organic reaction mechanisms.

•

Citric Push: National Research Council of Canada has declared its intention of pushing development of its process for the production of citric acid from beet molasses. Thus far, the process—a submerged fermentation technique—has been tried only on a laboratory scale. Three-day fermentation time is one interest-sparking feature of the Canadian method.

•

Milestone: The thousandth shipment of radioactive drugs was made recently by Abbott Laboratories' isotope division, Oak Ridge, Tenn.

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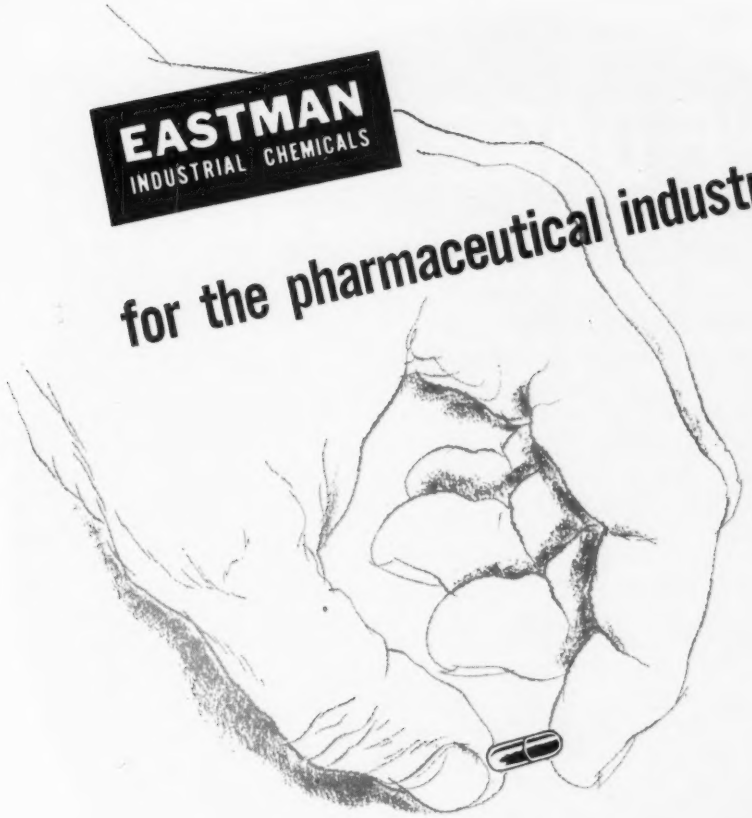

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acetic acid	■	■	■	■	
acetic anhydride	■	■	■	■	dehydrating agent
acetaldehyde	■	■	■	■	
acetanilide	■	■	■	■	
acetone	■	■	■	■	
ethyl acetate	■	■	■	■	
isobutyl acetate	■	■	■	■	
isobutyl alcohol	■	■	■	■	
isopropyl acetate	■	■	■	■	
m-aminophenol	■	■	■	■	
hydroquinone dimethyl ether	■	■	■	■	ultraviolet inhibitor
hydroquinone monomethyl ether	■	■	■	■	ultraviolet inhibitor
oxidized cellulose	■	■	■	■	hemostatic agent and adsorbant

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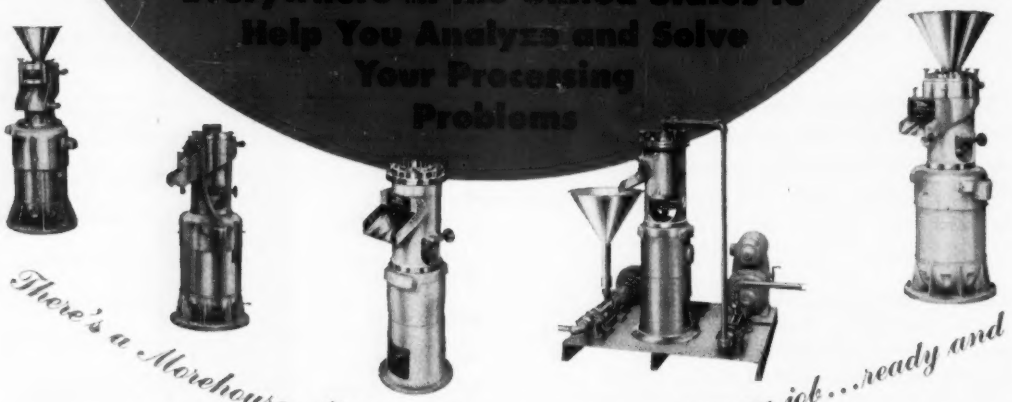

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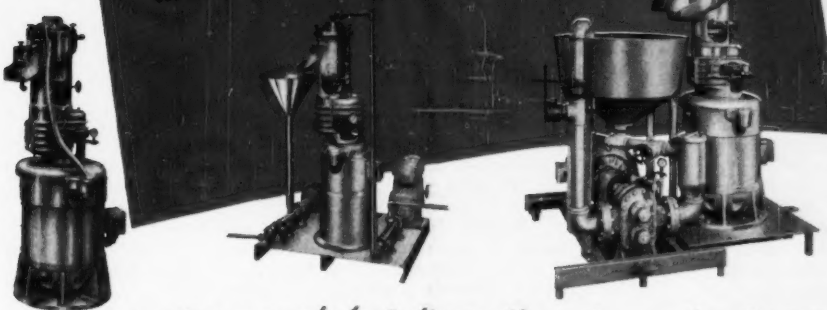

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Five Ways to Make Urea . . .

	Pechiney	Inventa	Chemico	Allied	Du Pont
What is it?	oil slurry recycle	once-through or recycle; absorption, desorption	once-through or recycle	recycle	solution recycle
What are the reactor conditions?	180 C., 200 atm.	180-200 C., 200 atm.	undisclosed	undisclosed	200-210 C., 400 atm.
What are the materials of construction for the reactor?	lead-lined	undisclosed	undisclosed	undisclosed	silver-lined
What's the conversion per pass?	50%	50%	undisclosed	over 40%	undisclosed
Who's using it?	Deere & Co. (Pryor, Okla.) and probably W. R. Grace (Woodstock, Tenn.)	No contracts revealed as yet	probably American Cyanamid (Avondale, La.)	Allied's Nitrogen Division (South Point, Ohio and La Platte, Neb.)	Du Pont (Belle, W. Va.)

. . . But None is Cheap or Easy

If you're looking for a nice, easy chemical to make and if you're short of capital, don't choose urea. For though urea is the first organic chemical that was ever synthesized,* time has not dealt kindly with it from a processing standpoint. The initial investment for a urea plant runs into several million dollars. It entails, moreover, an extra several million for an ammonia plant which must be built in conjunction with it. Even after the plant has been built, corrosion is a persistent headache in any of the many processes available.

In spite of that, a spate of companies is going ahead with plans for new plants. Presently, there are only two producers, Du Pont (producing it since 1933) and Allied (since 1950). But Allied is spending $4.2 million to revamp its present plant at South Point (Ohio), is also shelling out $25 million for a new ammonia-urea plant in La Platte, Nebr. Both are due to be joined by Deere & Co., the big farm machinery manufacturer and W. R. Grace. Deere is spending $18-$20-million on an ammonia-urea project in Pryor (Okla.); Grace is planning a similar project for Woodstock, just outside of Memphis (*CW, Aug. 30*). American Cyanamid, too, has received a certificate of necessity for a $7.5 million urea plant in Avondale (La.).

On the other hand, Cities Service, Sid Richardson and Pacific Chemical have all returned their certificates. And Spencer Chemical, which had been toying with the idea of a urea plant for its abuilding ammonia plant in Vicksburg, Miss., now tells CW that it has shelved the idea.

That means, of course, that DPA's expansion goals are open once more and other firms will be able to get certificates. They'll have a wide selection of processes to choose from, too, for while Allied and Du Pont are using their own, Foster Wheeler, Vulcan and Chemical Construction are eagerly pushing urea processes. Foster Wheeler has exclusive rights to the Pechiney process in this country, has contracted to build Deere's plant. What's more, it's a safe bet that it will get the contract for Grace's plant.

Just recently, Vulcan obtained rights to the Swiss Inventa process. Although it has not revealed any contracts that have been signed, Vulcan is convinced that its process is the solution to corrosion problems.

Chemical Construction engineered the new Sumitomo Chemical Co. plant in Japan (*CW, Nov. 29*). It installed a once-through process, but will push a recycle process for plants in this country. Neither Chemico nor its parent, American Cyanamid, is ready to talk, but it would be reasonable to assume that Chemico will build the latter's plant in Louisiana.

Process Pitfalls: All the present urea processes are based on the same chemical reactions: Ammonia combines with carbon dioxide to form ammonium carbamate, which in turn decomposes to urea and water. One difficulty is that the first reaction is exothermic, must be carefully controlled. It's favored by higher temperatures, but the

* By Wohler, in 1828.

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reaction takes place only in the liquid phase. Hence, high pressures must be employed. And under those conditions, the mixture is highly corrosive. In the past, lead or silver lining has been a must for the reactor vessel.

Another difficulty arises from the fact that conversion per pass of over 55% is impractical. In a once-through process, ammonia (by far the most expensive item of operating cost) must be recovered and sold either as the nitrate or the sulfate.

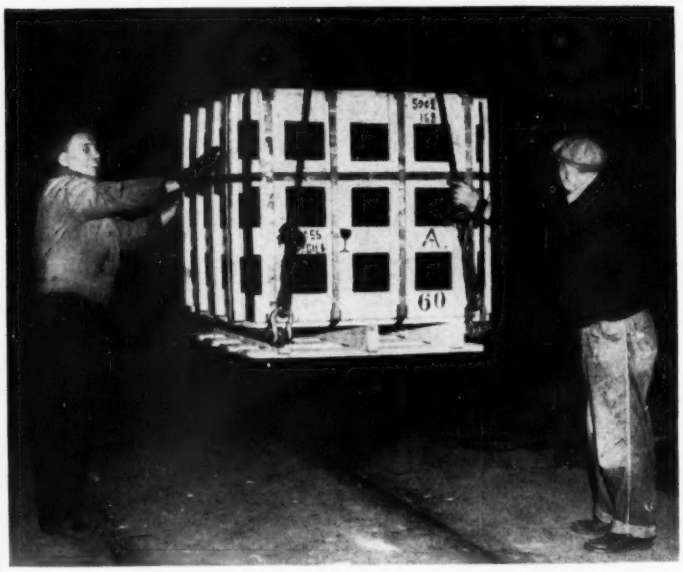
In a recycle process, the difficulty is even worse because the mixture of unreacted gases solidifies to the carbamate when recompressed to the reaction pressures. That clogs up the reactor, means that recycling is impossible unless steps are taken to prevent the carbamate from solidifying. There are several ways of doing that and they form the main points of difference among the various processes.

Separate the Gases: The obvious solution would be to separate the gases before recompressing them but that's been considered too expensive for commercial plants. Vulcan, however, claims that its Inventa process does it economically by a special absorbent-desorbent system. The key to the process is the nature of the absorbent and that's one part of the process Vulcan is carefully keeping secret. The trade is betting that it's ammonium nitrate.

Vulcan also feels it has stolen a march in the matter of materials of construction for the process. It is keeping that part of the process confidential, too, says merely that it does not use lead or silver. But it claims that a special alloy cuts corrosion problems and permits the reactor to be constructed as a shell-and-tube heat exchanger. Thus, it reasons, it is able to control the reaction easily, at the same time recover heat.

Making a Slurry: Foster Wheeler manages to keep the carbamate from solidifying by recycling it as a slurry in a mineral oil. Since the oil is added while cool, it helps control the reaction by absorbing some of the heat that is released. Foster Wheeler claims the recycling oil slurry licks the corrosion problem. It says it has some promising developments in reactor linings, but chances are it is still using lead.

Du Pont accomplishes essentially the same thing by recycling the carbamate in a water solution. The presence of large quantities of water,



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NEW COKE OVENS DIRECTLY, and chemicals and steel indirectly, will get the benefit of this initial shipment of 165 tons of a specially designed Belgian refractory. Said to be the first of its kind imported into this country, the refractory is made by the refractories Division of the Union Chimique Belge. The shipment was imported by Interchemtex, Inc., New York City. It will go to the expanding coke oven industry.

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however, inhibits the rate of conversion. Consequently, Du Pont must compensate for it by using a large excess of ammonia (which can be stripped off later for recycle) and high temperature (200-210 C). But the high temperature means a correspondingly high pressure (400 atm.) and adds to the corrosion problem. Du Pont is using silver-lined reactors.

Another method of approach is the one practiced by I. G. Farben at its Oppau plan, where it recycled hot gases. The mixture of gases was cooled in five stages up to 120-130 atm. Between stages, it was cooled by air but the reaction had to be carefully controlled to prevent the solid carbamate from forming.

Experts in this country are quick to point out that the I. G. process called for a heavy capital investment, involved maintenance costs that were practically prohibitive. It is still however, the method of choice in Europe. This is how the best available breakdown of European plants using the I. G. process looks: Norsk Hydro uses it to turn out 11,000 (metric) tons a year. The single Italian producer had a capacity of 7,000 tons in 1950, is putting in a plant to turn out an additional 12,000. The Dutch are building a plant and the Swiss are operating two plants.

Elsewhere in Europe, urea production is on the move also. France (using the Pechiney process) has an output of 100 tons a year but plans a 12,000-ton plant. And I.C.I. (probably using the I.G.) jumped its production from 17,800 tons in 1949 to 35,000 tons in 1950. Outside of the U.S., however, Japan ranks as the major producer. Its present capacity of 30-40,000 tons a year is being upped to 120-140,000 tons.

Question Marks: Big question marks as far as processes are concerned are Allied and Chemico. Allied has just broken ground for its plant in La Platte and is waiting for government approval on the use of natural gas. Meanwhile, its South Point plant is being converted over to a recycle process. Capacity of the La Platte plant is approximately 100,000 tons a year. And that should just about double the firm's present output.

Little is known about the nature of Allied's process. In the old, once-through method, conversion ran about 40% per pass. The new recycle process should boost that considerably. Corrosion is still a problem with Allied as it is with the others. It is abandoning its lead-lined reactors, possibly for silver-lined ones.

Similarly, very little is known about Chemico's process. It does use an ex-

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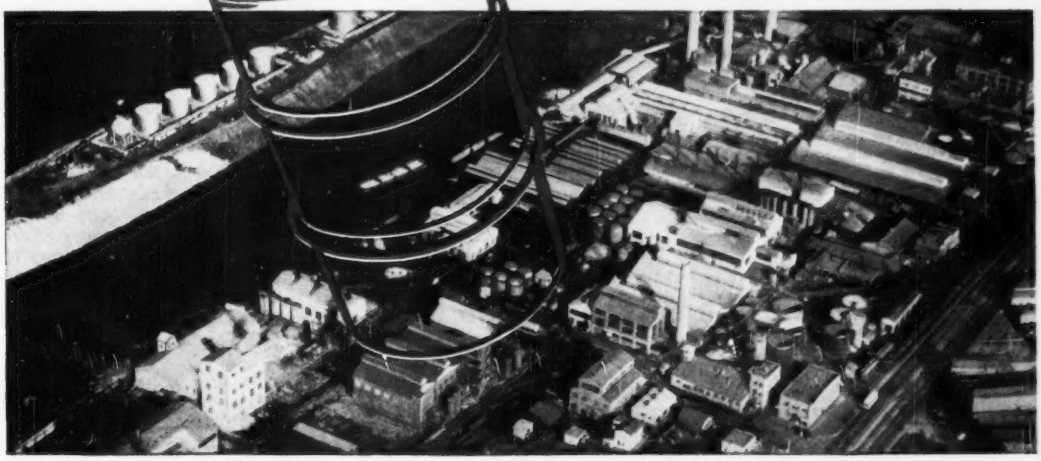

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PRODUCTION . . . . .

cess of ammonia to get a high conversion rate, thinks it has some clear-cut advantages over the older methods.

Feeling their Way: Most of the experts feel that corrosion is still a big problem and doubt that anyone has really solved it. As to the pros and cons of the processes, it's impossible to generalize. Capital invetment will vary with the size and location of the plant.

The same thing is true for operating costs. One consultant hit the nail on the head when he said: "Du Pont and Allied are the only ones with plants beyond the pilot stage. Anyone else is just guessing on costs."

EQUIPMENT . . . .

Dust Control: A complete rundown of technical information and data on the solution of industrial dust collection problems is available in a booklet just published by Draco Corp. (Cleveland). It lists descriptive information and specifications for the five types of Draco Dust Control equipment.

•

Photo-Counter: A packaged photoelectric counter is now being marketed by Photoswitch Inc. (Cambridge, Mass.). Big features, says Photoswitch, are its flexibility and ease of installation; it can be hooked up without any permanent wiring.

•

Steam Cleaner: Quaker Rubber Corp., Division of H. K. Porter, Inc. (Philadelphia), is turning out a steam hose that combines braided wire and glass cord construction. The firm figures the inner braids of wire give it high burst resistance; the glass outer braid gives extra strength and provides insulation. Said to be suitable for finishing work in process plants as well as for all steam cleaning operations, the hose is designed for working pressures up to 200 psi. It's being marketed in sizes from ½ to 1¼ in. (inner diameter).

•

For Comparing Spectra: Consolidated Engineering Corp. (Pasadena, Calif.) claims to have made easy the job of comparing recorded spectra with known mass spectra data through its new Keysort File of Mass Spectra. The cards are said to be easy to use, mechanize the comparing process with a small amount of equipment.

•

German Mill: Gustav Spangenberg, Machine Factory, Mannheim, has developed a high speed roller mill ("Plastikmeister") that's claimed to process pastes, soften them so that further treatment can be carried out at high speeds. Design features of the

are these alkyl phosphites your blessed event?

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All of the Alkyl Phosphites listed in the table below are available in commercial quantities. Samples and technical literature are yours for the asking. Simply request these on your company letterhead.

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DIALKYL HYDROGEN PHOSPHITES	Boiling Point	Specific Gravity	Flash Point, Cleveland Open Cup	Solubility in Water
DIMETHYL	72-3°C/25 mm	1.200	205°F	Soluble. Hydrolyzes.
DIETHYL	65-6°C/6 mm	1.079	195°F	Soluble. Hydrolyzes.
DIBUTYL	118-9°C/7 mm	0.995	250°F	Slightly soluble. Slowly hydrolyzes.
DI-2-ETHYLHEXYL	163-4°C/3 mm	0.937	330°F	Insoluble. Very slowly hydrolyzes.

All possess good thermal stability. Miscible with alcohol, ether, and most of the common organic solvents.

TRIALKYL PHOSPHITES				
TRIETHYL	65-6°C/24 mm	0.969	130°F	Slightly soluble. Hydrolyzes.
TRI-2-PROPYL	94-6°C/50 mm	0.914	165°F	Insoluble. Slowly hydrolyzes.
TRIBUTYL	118-21°C/7 mm	0.925	250°F	Insoluble. Slowly hydrolyzes.
TRIHEXYL	135-41°C/0-2 mm	0.897	320°F	Insoluble. Very slowly hydrolyzes.
TRI-ISO-OCTYL	161-4°C/0-3 mm	0.891	385°F	"
TRI-2-ETHYLHEXYL	163-4°C/0-3 mm	0.902	385°F	"

All possess good thermal stability. Miscible with alcohols, benzene, ether, heptane, carbon tetrachloride, and most of the common organic solvents.

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Tetraethyl Pyrophosphate
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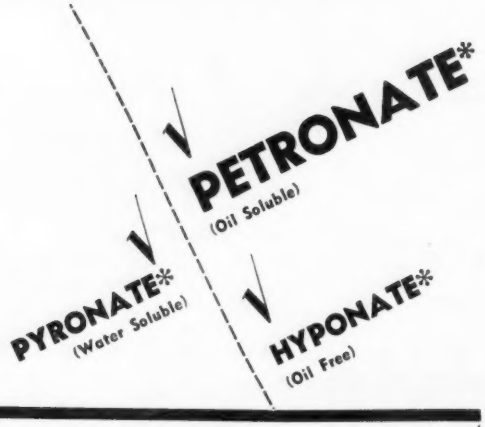

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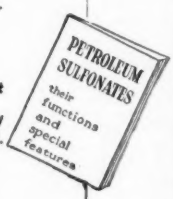

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RESEARCH

PRODUCTION . . . . .

mill include: patented trap grooves at roller faces that prevent penetration of cleansing agents or solvents into the roller bearings; a water cooling system that prevents unequal expansion of the roller. Also, the mill has a scraper that can be adjusted to any desired angle during operation to permit removal of the processed material. It's furnished with either a charging hopper or with a spatula, can be purchased with steam-heated rollers on special order.

•

Patch for Pipe: Adams Pipe Repair Products (El Monte, Calif.) now reports that to afford greater protection against corrosion, its malleable iron castings in the Stauffer Pipe Repair line are now furnished with two coats of powdered stainless steel in plastic suspension. The firm claims that the clamps offer a permanent repair for leaks, blow-outs and short splits in all types of pipe.

•

New Office: Research Corp. (Bound Brook, N.J.) has just opened a new divisional office in Pittsburgh, Pa. The firm makes Cottrell electrostatic precipitators.

•

New Name: The Jet-Vac Corp. (Boston) has been organized in Boston as an affiliate of the Artisan Metal Products, Inc. The new firm will design and manufacture ejectors and allied equipment. It will aim especially at industries with corrosion problems and those in which controlled low pressures are essential.

One Step Closer

Prospects of a petrochemical industry in the Salt Lake Valley moved a step closer to completion late last month when Phillips Petroleum dedicated its new $10 million cat cracker plant at Woods Cross, Utah. Completion of the new facilities will raise total refinery capacity to 80,000 bbl. a day by early next year. That's just 20,000 bbl. short of the 100,000 bbl. deemed necessary by some experts to support a young petrochemical industry.

And from the standpoint of design, the new plant offers a significant case history. Construction of the 265 ft. cat cracker presented some difficulties, for instance, because it rests on a subsurface mudbank of the Great Salt Lake. Pilings were driven down 70 and 80 ft., however, and there has been no perceptible sinking of the structure as yet.

No waste gas will be flared and burned at the refinery. Instead, the gases (about 1 million cu. ft. a day) will be burned to provide heat for processing.

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EVER see them lay a gas or oil pipeline like *this?* We mean the "big inchers" you could crawl through. They're so vital that industry is laying millions of dollars worth of new ones every year.

Unprotected, these underground steel arteries would soon rust away. But industry has developed a life-saving sheath for them and often, the main protective material is Pitt Chem Tar Base Pipeline Enamel—an impervious product of coal.

As a *basic* and *integrated* producer of coal chemicals and related products, we closely control *quality* from coal to finished coatings. That's why Pitt Chem Enamels perform better in application and service.

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SPECIALTIES . .

After the Snow is Over

Winter may be blanketing the land, but it can't hide the bustle of soil-conditioner makers, preparing for their first full-season push. It promises to be a gloves-off affair.

Seed catalogs aren't off the presses, and many an amateur gardener has scarcely forgotten his summertime blisters, yet makers of chemical soil conditioners are already preparing for spring. It'll be the first full season for the SC neophytes.

That the coming battle for the gardener's dollar is going to be rough—and expensive—is indicated by the full-page color ads (*see cut*) with which Monsanto is plugging Krilium nationally.* It seems clear that Monsanto, a little slow in getting started with its conditioner, intends to keep the pressure on from here forward.

Just what sort of pressure it has in mind will be revealed to its district salesmen next week in St. Louis, when Monsanto has its winter sales conference. And the plotting won't be restricted to St. Louis; American Cyanamid has slated a similar gathering for its forces in New York soon.

PROSPECTS

With big manufacturers like Goodrich, Du Pont, and American Cyanamid now in the business, chances are that few new small outfits will dive into the SC production pool. But there's still plenty of room for distributors, say the suppliers, even though basic materials are increasingly hard to find.

This amounts to a tempered optimism for what all manufacturers agree will be a "giant opportunity" next spring. Last season, conditioners were introduced too late to catch the spring plantings in the South and on the West Coast. Even in the northern areas, dealers' supply lines weren't filled soon enough, and mail orders were often received too late to be of value to the gardener. In fact, some SC makers report that most of their selling was done before August—in spite of price reductions and developments later in the season.

Another facet of the upcoming season is that the farmer will be wooed more assiduously. American Cyanamid, for instance, has been promoting the value of crop-row treatment, in which only the immediate area of seeding is conditioned. At Cornell University, this approach is being thoroughly explored with a seeding machine that is modified to put down a liquid soil conditioner along with the seeds (*see cut*). A tank of Aerotil mounted on the seeder is connected by pipe to the drill unit. The depth of treatment was limited to half an inch, and a few gallons per acre proved to be of high value.

* In England, where much growing under glass is done, Monsanto is conducting a similar campaign, with emphasis on "give Dad Krilium for Christmas."

AMERICAN CYANIMID

SEEDER-CONDITIONER: A try for the farmer's dollar.

PRICES

If the farmer is to be lured, prices of soil conditioners will have to come down, and that holds for commercial growers and home gardeners, too. It's a fact that SC makers seem unwilling to admit, but it's emphasized by almost every garden and farm supply house from coast to coast.

Most suppliers of the sodium polyacrylates say that raw material costs will prevent them from dropping prices, but point out that bulk costs ($1.25-1.50 per gallon) permit a substantial cut at the distributor level.

Monsanto, whose premium-priced Krilium was probably the largest seller of the soil conditioners last season (in spite of a weed-growth of competitors), is indefinite on price reductions, and doesn't hold it as a prospect.

POSSIBILITIES

All this unwillingness to slash prices has cleared the way for numerous other products to check-in as "soil

OFF-SEASON AD: Keeping Krilium in the public's thoughts.

conditioners." To be introduced within a month is a new conditioner, a ferric ammonium complex, which will sell for approximately 16¢ per pound. A 25 lb. bag will cover 400 sq. ft.—at roughly 1¢ per sq. ft. This compares to the 8¢ ticket for other types.

And there's another hush-hush product on the way. One garden supply house, which estimates that $25 worth will do a job equal to that of $500 worth of other materials, says it should be ready by next spring.

The list of materials that have already been promoted as SC's includes such diverse items as the vinyl acetate-maleic anhydride types (Monsanto and its licensees), the sodium polyacrylates (American Cyanamid's Aerotil, Cal-Spray's Orthotil, probably the majority of the other products); cellulose derivatives (Drum Chemical's Terrasol); peat moss; and silicates (vermiculite has been tried).

Polyacrylates, however, are still the most widely used raw materials for soil conditioners. Most acrylate suppliers figure on working at capacity next year; and one maker, B. F. Goodrich Chemical Co., has expanded its manufacturing facilities. Goodrich, like American Polymer Corp. (Peabody, Mass.) sells only to formulators, does not retail its own product.

Other developments to look for next spring:

- Monsanto may come out with a liquid formulation of Krilium.
- A couple of companies which have been confined to liquid polyacrylate types will likely introduce solid forms (Dreer and Wilson Organic Chemicals).

But one big question still remains—will Monsanto, which has a huge acrylonitrile plant due on stream next

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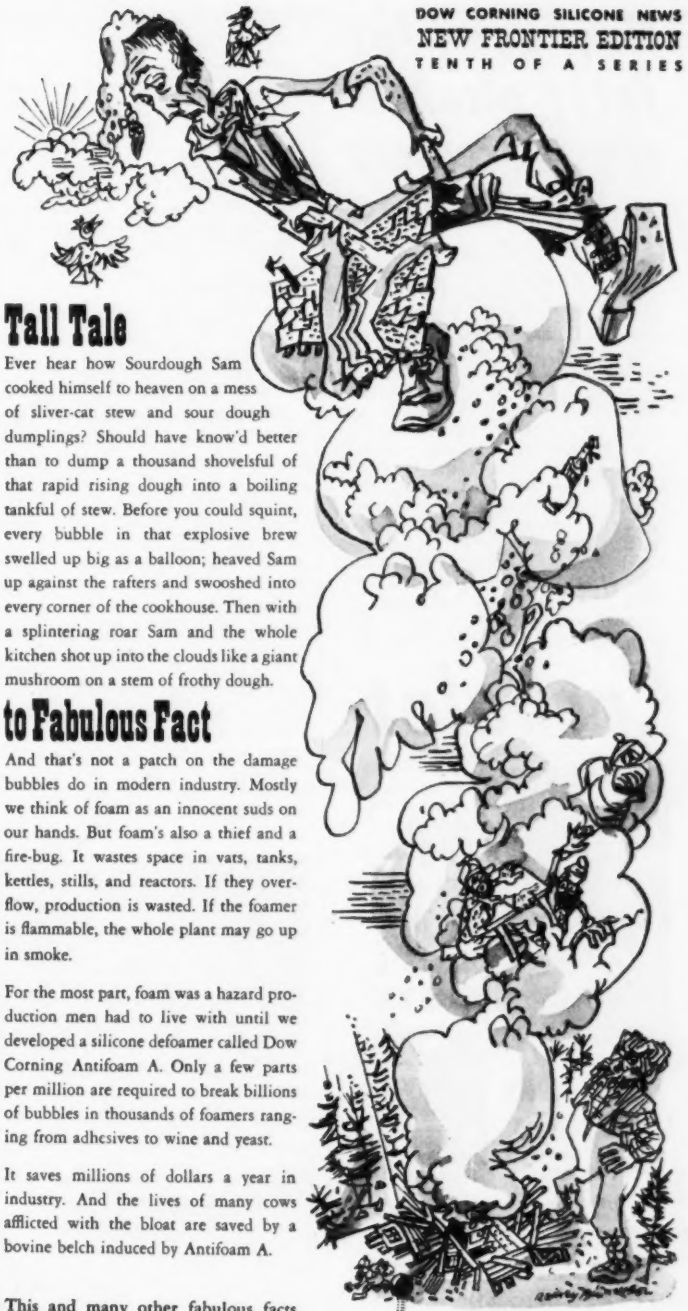
TENTH OF A SERIES



Tall Tale

Ever hear how Sourdough Sam cooked himself to heaven on a mess of sliver-cat stew and sour dough dumplings? Should have know'd better than to dump a thousand shovelsful of that rapid rising dough into a boiling tankful of stew. Before you could squint, every bubble in that explosive brew swelled up big as a balloon; heaved Sam up against the rafters and swooshed into every corner of the cookhouse. Then with a splintering roar Sam and the whole kitchen shot up into the clouds like a giant mushroom on a stem of frothy dough.

to Fabulous Fact

And that's not a patch on the damage bubbles do in modern industry. Mostly we think of foam as an innocent suds on our hands. But foam's also a thief and a fire-bug. It wastes space in vats, tanks, kettles, stills, and reactors. If they overflow, production is wasted. If the foamer is flammable, the whole plant may go up in smoke.

For the most part, foam was a hazard production men had to live with until we developed a silicone defoamer called Dow Corning Antifoam A. Only a few parts per million are required to break billions of bubbles in thousands of foamers ranging from adhesives to wine and yeast.

It saves millions of dollars a year in industry. And the lives of many cows afflicted with the bloat are saved by a bovine belch induced by Antifoam A.

This and many other fabulous facts are more fully described in a semi-technical publication called "What's A Silicone?". Simply address your request to Department BR-24.

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year, be producing a polyacrylate form of Krilium? Company officials seem inclined to the present product.

PROBLEMS

The confusion which accompanied the introduction of the SC's last spring has led to a number of violent disagreements, claims, and counterclaims, none of which helped the sale of the conditioners.

In an effort to bring a semblance of order to the industry, trade organizations have been suggested. Henry A. Dreer's Inc. has promoted a plan for such an association, The National Chemical Soil Conditioner Manufacturers Assn., but several major manufacturers have refused to take part. A more likely step will be formation of a group with non-manufacture sponsorship. The ASTM has been mentioned.

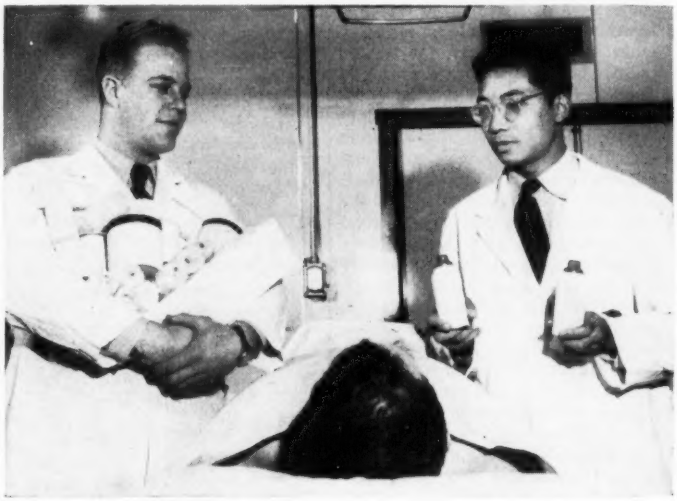
Still further disagreement exists in regard to the standards by which the artificial humus compounds are to be judged. Aggregating properties, ability to improve erosion resistance, controlled garden tests—all are suggested, but none have been settled upon. Something put forward by one firm is rejected by another. "We refuse to agree to standards that one company is trying to ram down the consumers' throats by heavy advertising," says one outfit.

The supply houses also have a number of complaints to register. Packages frequently break open, and the makers have shown a "sad and complete ignorance of consumer merchandising." The retailers aren't willing to put much advertising space on them ("we don't get enough sales volume from them for us to waste space on such a high-priced item"), and feel that despite the news the SC's have made, they haven't done as well as they might have. This is a significant opinion, since it comes from those most involved in SC sales.

PATENTS

A point that is seldom mentioned among the artificial humus makers is patents. That some are concerned, however, is shown by the pre-patent licensing of firms by Monsanto. The firm feels that its position is "very strong," and that the question will likely come up for serious consideration next year.

And if Monsanto has the best patent situation, it also has a fine position advertising-wise. Few firms have as valuable a property as the name "Krilium," and few of them have as yet even settled their plans for the upcoming season. But no matter what such plans will be, it looks like another free-for-all in soil conditioners next year.



Canned Bandage

TRANSPARENT, flexible plastic surgical dressings are a new Air Force development in aerosols. Sprayed directly on the injuries, they offer immediate protection. Moreover, they're convenient (the two containers on the right equal the other man's armload of bandages) and inexpensive.

start of a

Beautiful Finish

. . . and a brighter look on profits!

Victor Phosphoric Acid for low-cost metal cleaning. Effective rust preventive . . . provides better adhesion between paint and metal.

Lots of folks know Victor as an exceptionally fine source of supply for industrial chemicals. True as this is *we* nevertheless like to think of ourselves as leaders in the art of putting a "brighter look" on the profits of the many companies in the many industries we serve. Finding faster, lower cost, or better methods of producing better goods has been our forte for 54 years.

The helping hand of Victor's research department and the excellence of Victor chemicals are well known to more than 40 different industries, from agriculture to textiles . . . from metal treating to pharmaceuticals. If you have a process or product problem that a chemical might solve . . . or if you are looking for an unusually capable source of supply for industrial chemicals, have your technical men talk it over with ours. Victor Chemical Works, 141 W. Jackson Blvd., Chicago 4, Ill. In the west: A. R. Maas Division, 4570 Ardine St., South Gate, Calif.

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Heavy, hard-to-handle rolls of plastic sheeting speed their way safely and economically to automotive safety glass manufacturers in strong, shock-absorbing, freight-saving H & D corrugated Pallet Paks. Previously, drums were used with a resulting high handling and shipping expense. Now—this simplified packaging method, developed by the H & D Package Laboratory, protects nine rolls in shipment. Over-all packing, handling, and storage costs are materially reduced.

Use H & D material handling methods to *your advantage.* You will realize freight savings, easier packing, simpler handling, better product protection, more economy at every step. For 13-volume "Little Packaging Library," write Hinde & Dauch, 5202 Decatur Street, Sandusky, Ohio.

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SPECIALTIES . . . . .

Packed to Last

Another phase of packaging and preservation was examined last week in Camden, N. J., where representatives of General Motors and R. M. Hollingshead conferred.

Hollingshead made use of the occasion to demonstrate its new corrosion-prevention compounds before 200 packaging specialists and chemists. Its No. 1 attraction was a new sulfonated, polar compound designed to adhere strongly to both ferrous and nonferrous metals, rendering them highly resistant to corrosion.

The conference, which included discussions on the mechanisms of corrosion formation and prevention, also dealt with the peelable-plastic protective coatings. Prime among those mentioned were cold-dip vinyl plastisols, which are infra-red dried to provide a fast-forming, but tough coating.

•

Chemical Countermeasure: In a move to control the "red tide", the fish-destroying infestation in the seas off the Florida Gulf Coast, the U. S. Fish and Wildlife research vessel *Alaska* last week poured 15,000 pounds of copper sulfate into the affected seas. The so-called tide, caused by a minute organism termed dinoflagellates, covers almost 400 square miles.

•

Resin Backbone: Part of the success of pocket-size books can be laid to newly developed synthetic resins, according to Du Pont. The resins permit the formulation of fast drying "hot melt" adhesives suitable for the 20,000-books-per-hour binding machines.

•

Rubber Out: The term "rubber-based" may be on the way out—Dow Chemical Co. is pushing the term "latex paints." The rubber tag apparently originated when a promotion man decided to capitalize on what a Dow official describes as a "remote" relationship between paint latices and rubber latex.

•

Salicylamide Source: The recent CW story on aspirin and related compounds inadvertently failed to include Heyden Chemical Corp. (New York) among the leading producers of salicylamide. Heyden is also one of the largest manufacturers of basic aspirin, although it does not sell any tablets.

•

Brush Control: Sodium arsenite and light petroleum oils are among the recommended controls for mesquite, which the U. S. Department of Agriculture officials predict will become an increasing ranch problem. The USDA

The solvents and chemicals sold under the ENJAY* Oval Trade-Mark are outstanding for high quality and dependability. Every day more industries are calling on the long experience of the Enjay Company . . . making greater use of the diversified line of solvents and chemicals marketed by Enjay to increase product quality.

*Trade-Mark

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Petrohol 95 (Isopropyl Alcohol)
Petrohol 99 (Isopropyl Alcohol)
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Acetone
Methyl Ethyl Ketone
Ethyl Ether
Isopropyl Ether
Diisobutylene
Polypropylenes
Butadiene
Isoprene
Dicyclopentadiene
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2 to 6 ply plain or printed 1 to 4 colors

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If your product fits into a bag — we'll make the bag to fit your product.

warns that the brush has heavily invaded Southwestern grasslands, cutting grazing area, retarding range recovery, and accelerating erosion.

Another development in the field of chemical plant-killing is 2-methyl-4-chlorophenoxyacetic acid. Monsanto Chemical Co., producers of MCP herbicides, will have a product available next year containing 90% of the most active isomer. The product will be tabbed MCP-90.

•

Strong Cobb in California: Full pharmaceutical production is under way at the new, 62,000 sq. ft. plant of Strong Cobb & Co.

•

Firm Footing: Tempo Chemical Co. (Long Island City, N. Y.) is now selling a new antiskid floor surfacer, Tempo Anti-Skid. Troweled on, it provides what is claimed to be a waterproof, fire retardant, oil- and acid-resistant surface.

•

Green Progress: Pale green in color, Arrid underarm deodorant with chlorophyll is being test-marketed in five Midwestern states. The Carter Products (New York) cosmetic is claimed to be stainless, and more effective than the standard deodorant.

•

Stomach Stabilizers: A new product designed to give relief to sufferers of motion sickness is Parke, Davis & Co.'s Benadryl with hyoscine (diphenhydramine hydrochloride and hyoscine hydrobromide). The combination tablet has also shown value in treatment of Parkinson's disease.

•

Neé POCA: The 21-year old Processing Oils and Chemicals Assn. will change its name to the Textile Chemical Manufacturers Assn. The group is an organization of management men in the textile field.

•

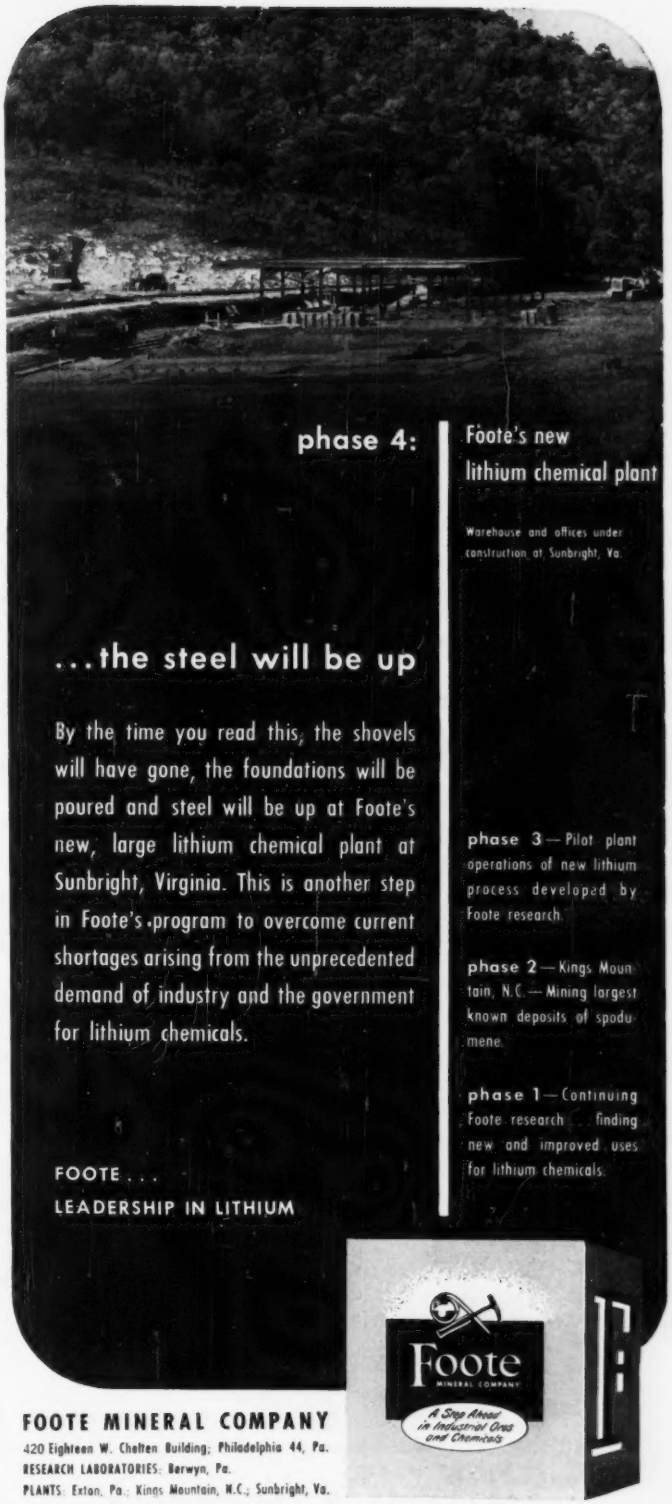
Powdermakers: Recently organized in Charlestown, W. Va., was the Beckley Powder Co., capitalized at $25,000.

•

Caustic Blast-Off: Cleveland Metal Cleaning Corp. has come up with what it describes as a process for removing faulty enamel from sinks. It uses a caustic-salts solution that is claimed to be 25% cheaper than the commonly used sandblasting method.

•

Swifter Vigoro: Swift & Co.'s Plant Food Division has just introduced a new form of Vigoro, calling it Instant Vigoro. The new product, as mentioned in CW last July *(CW, July 19)* is a high-analysis, water-soluble plant food, is dissolved in water to apply.


phase 4:
Foote's new lithium chemical plant
Warehouse and offices under construction at Sunbright, Va.
...the steel will be up
By the time you read this, the shovels will have gone, the foundations will be poured and steel will be up at Foote's new, large lithium chemical plant at Sunbright, Virginia. This is another step in Foote's program to overcome current shortages arising from the unprecedented demand of industry and the government for lithium chemicals.
phase 3 — Pilot plant operations of new lithium process developed by Foote research.
phase 2 — Kings Mountain, N.C. — Mining largest known deposits of spodumene.
phase 1 — Continuing Foote research . . . finding new and improved uses for lithium chemicals.
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RESEARCH LABORATORIES: Berwyn, Pa.
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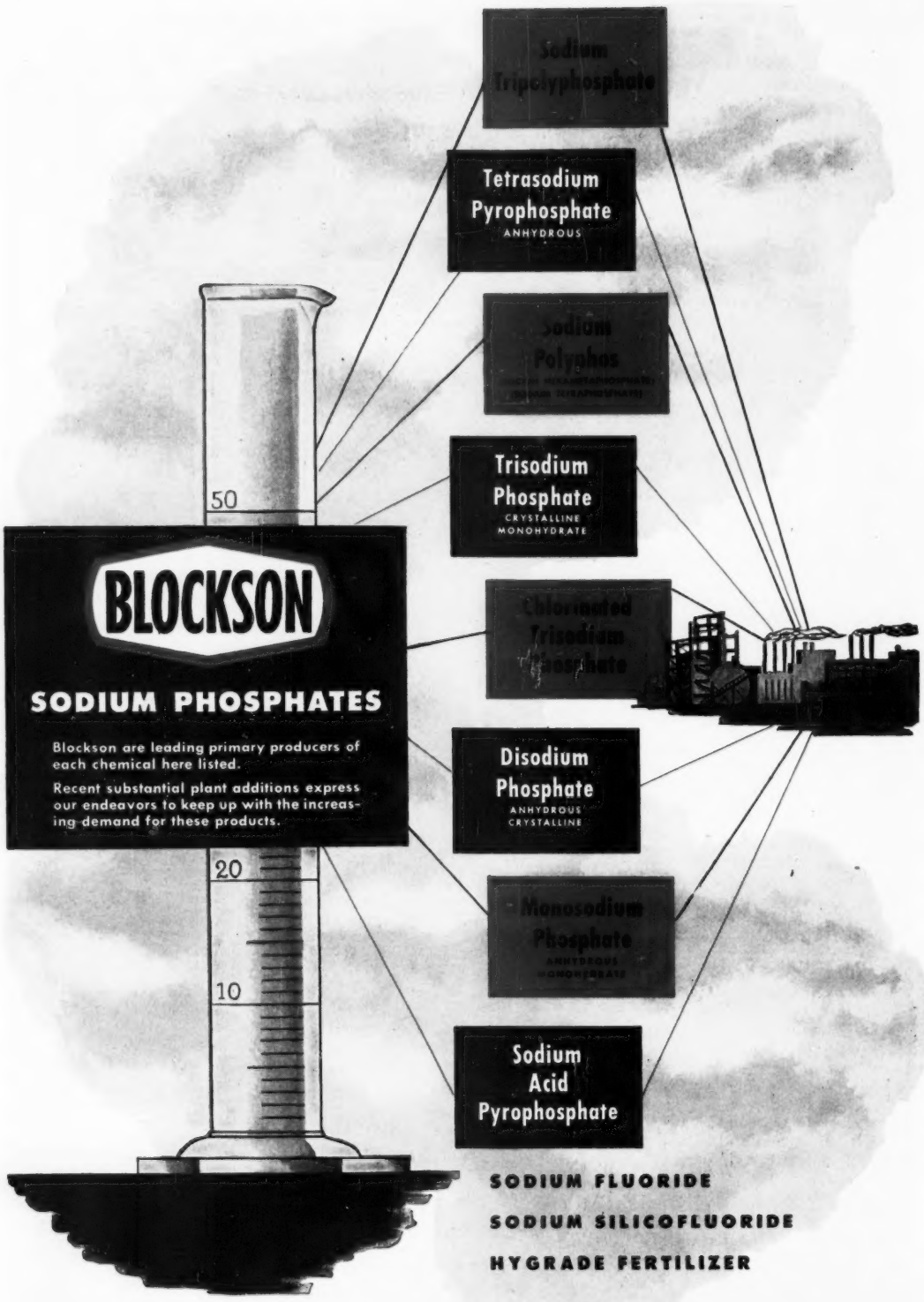

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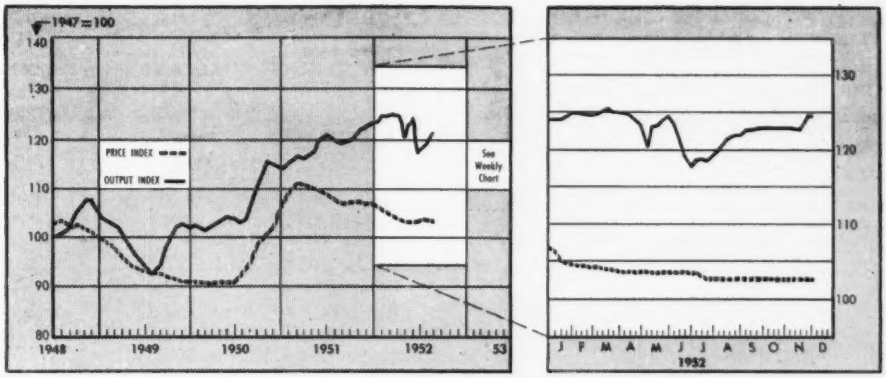

CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

It hardly needs to be said, but watch for more upward pressure on the prices of coal-based chemicals. John L. Lewis' $1.90/day hike will supply the steam.

The increase in ammonium sulfate prices, allowed under revised ceilings, is spreading beyond the few producers reported earlier. OPS is waiting to see if the new levels can be maintained before providing relief for fertilizer mixers hit by the advance.

Reports are, too, that benzene is edging upwards. At least one of the majors has changed its schedule. The others are holding to a wait-and-see attitude. But the general mood is revealed in a new price on refined pyridine. One producer has raised his price 10¢ per pound. It follows the advance made in the denaturing grade last week.

Cadmium has hit the skids—along with its other non-ferrous brethren. St. Joseph Lead's new price ($1.50 per pound vs. the former $2.00 tag) creates a split market. The other producers are apparently going to try bluffing out the imported metal which is being offered, reportedly, in the $1.60 to $1.75 range.

The situation must be especially pleasing to the industry's purchasing agents. It was the high price of the imported product—$4.00 to $7.00 a pound—which caused all the anguish during the still-remembered post-Korea scarcity.

Other non-ferrous developments, from here and abroad:

Uranium explorations will receive a big boost from the oil companies—if they adopt a scheme being urged by the Society of Exploration Geophysicists. The idea is to test for radioactivity the dirt being pulled out of the 4,000 seismographic test holes being dug each day. Present uranium prospecting is badly hampered by overlaying soil—it smothers the radio activity of deposits.

Copper mining, the country's first, will soon start in the State of Israel. The site: same spot as King Solomon's ancient mines.

Tungsten controls may come off, says NPA, and possibly before the end of the year. The U. S. is receiving over half of the free world supply, and requirements seem to be in balance with what's available.

MARKET LETTER

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	$ 124.3	$ 124.5	$ 125.0
CHEMICAL WEEK Wholesale Price Index (1947=100)	102.0	102.2	106.7
Bituminous Coal Production (daily average, 1,000 tons)	1,800.	1,738.	2,032.
Steel Ingot Production (1,000 tons)	2,191,000	2,180,000	2,080,000
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	257.1	257.8	235.5

MONTHLY INDICATORS—PRODUCTION (Index 1947-49=100)	Latest Month	Preceding Month	Year Ago
All Manufacturing and Mining	227	226	218
Durable Manufactures	294	287	274
Non-durable Manufactures	193	194	188
All Chemical Products	303	303	298
Industrial Chemicals	574	565	556
Petroleum and Coal Products	275	281	269

The export market, which has been slipping steadily for months, appears to be making a comeback. The latest figures, for September, show the first hopeful hint: Industrial chemicals rose from $9.1 to $9.6 million, an increase of 5% over the preceding month.

But the talk among the exporters is that foreign markets are still sticky, with the dollar shortage still the favorite whipping-boy.

A 50% reduction in price is news any time, but it rarely happens anywhere except in the stratospheric area of pharmaceutical commerce. The latest such case is Plasdone, General Aniline & Films' PVP plasma extender. GAF has reduced the pharmaceutical grade from $12.00 to $6.00 per pound, and the lower-purity grade from $6.00 to $3.00.

Some arms of government view uniform prices with alarm; others apparently approve. Fortunately for two potash companies, the OPS belongs, in part, to the second group. It has just allowed International Minerals (Carlsbad, N. M.) and Bonneville, Ltd. (Wendover, Utah) to raise their potash schedules 1¢ per unit (equivalent to 20 pounds of contained K_2O).

Purpose of the raise: to restore the uniform pricing practice maintained in the industry since 1934. The two companies were caught at 42¢ a unit vs. 43¢ for the rest of the producers.

Other potash news: a second large potash lode has been discovered in Saskatchewan. Liberal Petroleums, Ltd., has obtained mining permits from the Canadian Pacific Railway and the provincial government covering 100,000 acres in the Palo area. The first strike, in the Vera-Unity region (CW, Oct. 13, '51), started producing this fall.

Phthalic anhydride producers are watching their inventories drop, but they don't think it'll mean a shortage. "In balance" is the term they are using. There seems to be some confusion on the cause—alkyd makers are reported to be making the biggest impact on the market, yet alkyd sales don't reflect the surge.

Best guess: Phthalic stocks in alkyd-makers' plants dropped off during the past few months; now the plants are building up inventories of both raw materials and finished products.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending December 8, 1952

	Change	New Price		Change	New Price
UP					
Benzene, gal., (1 producer)	.0175	.3875	Ammonium Sulfate, ton, (Pitts.)	4.00	44.00
DOWN					
Camphor, synthetic, USP, powd., lb.	.03	.57	Cadmium, lb., (1 producer)	.50	1.50

All prices per pound unless quantity is stated.

How Celite Mineral Fillers give a product delicate abrasiveness...

Putting a "Soft" shine in polishes

TO PRODUCE A POLISH that is scratch-free—yet contains exceptional cleaning powers—most leading manufacturers of fine polishes use one of the Celite Mineral Fillers as a standard ingredient.

This use of Celite Fillers is based on their delicate non-scratching abrasive action—a property that derives from their porous, thin-walled cellular structure. It is one of many unusual physical characteristics that adapt these diatomaceous silica powders to numerous industrial uses.

THESE CELITE PROPERTIES BENEFIT MANY TYPES OF PRODUCTS

Because of their inertness and great bulk per unit of weight, Celite Mineral Fillers make ideal bulking agents for powders and pastes. Their tiny multi-shaped particles interlace to stiffen and strengthen admixtures. The microscopically small facets of these particles diffuse light so effectively that they can be utilized to impart any desired degree of flatness to a surface film. Their light, porous nature improves suspension, helps prevent segregation. And their high absorption properties and unique diatom structure make them unusually effective as a means of overcoming caking in deliquescent materials.

If you are looking for the "extra something" to lift your product above competition—at a negligible cost—why not discuss your problem with a Johns-Manville Celite Engineer? For further information and samples, write Johns-Manville, Box 60, New York 16, N. Y.

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- Better Dielectric Properties
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- Increased Viscosity
- Elimination of Caking
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- Better Dry Mixing
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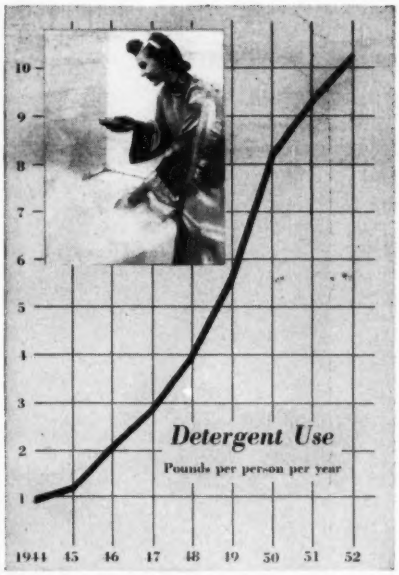


Detergents in . . .

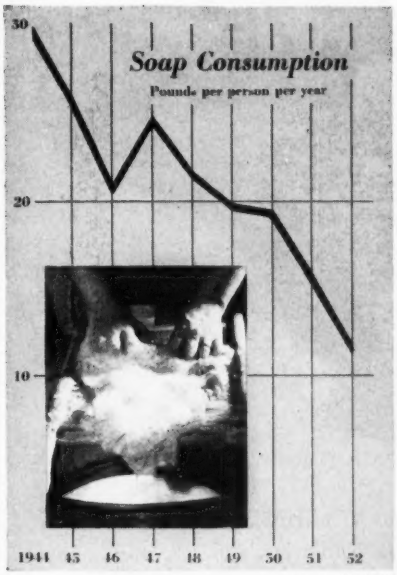
The tide of detergents continues to rise at an unabated rate. Stable-priced raw materials combine with consumer preference for synthetic detergents to draw soap consumption down at the end of this, the fifth successive year. The spirits of the members of the National Renderers Association are probably at an all-time low. At their convention in San Francisco late last month, an unrelieved atmosphere of gloom pervaded their sessions.

And well might they mourn; for tallow, their stock-in-trade, has been wasting away year-by-year. And this year is worse than ever. Tallow-for-soap demand has now sunk to less than 70% of 1947, recent high year.

More startlingly, this decline is in the face of a 13-million population increase in the past five years. From the soap-makers'—chief takers of tallow—point of view, the people of this country now wash about half as much as they did in 1947.

Not that the population is becoming any less sanitary in its habits; what isn't used as soap, is made up for by synthetic detergents.

The Slide-Off: Sad story that this is for the tallow men, there is no pat happy ending in sight. They readily admit there is little chance of regaining the ground lost to the chemical detergents. They're only hope is to stave off the down trend, count on researchers to provide new outlets.



. . . Soaps out

Tallow, its close relative, grease, and coconut oil account for perhaps 90% of all fats and oils employed in the soap industry. Their past and present are, therefore, closely tied to that of soap. The records of all three of these chief soap raw materials have been similar; their fates, in terms of consumption, merely a matter of degree.

In terms of price and consumption, the records during the past six years look like this:

Tallow

Year	*Price, ¢/#* *High*	*Low*	*% consumed in cleaning agents*
1947	26.6	11.8	82
1948	26.8	10.8	81
1949	10.2	5.0	81
1950	16.2	5.1	78
1951	17.8	7.5	71
Today	5.4		70 (est.)

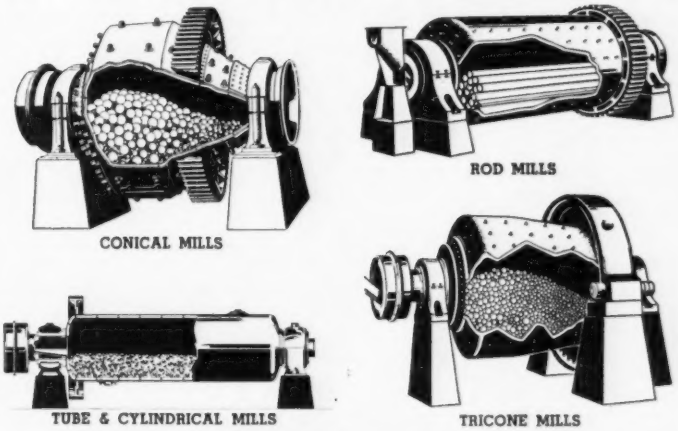
(Grease follows a pattern similar to tallow.)

Coconut Oil, Crude

Year	*Price, ¢/#* *High*	*Low*	*% consumed in cleaning agents*
1947	26.0	11.0	61
1948	26.5	12.5	62
1949	17.8	12.5	51
1950	18.0	12.8	45
1951	22.0	11.1	34
Today	13.8		35 (est.)

Starting in 1950, it was evident

If your problem is GRINDING
investigate HARDINGE MILLS



Write for Bulletin AH-440-36.

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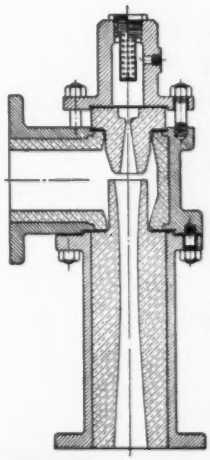
C-R EVACTORS
MEET CORROSION PROBLEMS



The chemical industries are employing more and more Croll-Reynolds Evactors in vacuum processes where corrosion resistance is a major consideration. These steam jet vacuum units provide pressures ranging from a few inches to a few microns. Croll-Reynolds is a pioneer in the use of new construction materials and our engineers are investigating corrosion problems continually.

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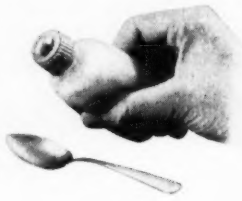
There's more to a "SQUEEZE" than you think

when it's applied to a PLAXPAK bottle

Squeezing this Plaxpak bottle forces sealing compound out of spout in narrow ribbon.

Squeeze of this Plaxpak wash bottle dispenses contents in controlled thin stream.



Pre-measured dispensing — squeeze fills well in neck of this Plaxpak bottle.

Squeeze of Plaxpak bottle saturates sponge for uniform, neat application of hair coloring.

Tap water is demineralized quickly by this Plaxpak bottle combination.

THESE PLAXPAK polyethylene bottles vary widely in application, but they all have one thing in common — a squeeze by the user dispenses the contents neatly, quickly and controllably.

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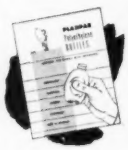

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that a new force was making itself felt. The price patterns for the fats and oils had not changed. But something beyond their control was causing the demand to fade. In the graph pictured above, this same sharp drop —in terms of the end product, soap— is clearly visible.

Detergent Bid: That new factor, raising hob with the old-fashioned cleaners, was and is the new synthetic detergents. (The term as here defined includes all non-soap materials used in a manner comparable to soap.)

For ten years or more, makers of the synthetics had let their products drift along. Industrial consumers and specialty users accounted for a large percentage of the output. Then the makers, sensing a big, untapped market, made a slam bid for the home laundry and all-purpose domestic cleaners. The result of this move is evident in the production figures. Here they are, in terms of 1946 and today (in millions of pounds):

	Soaps	*Synthetics*
1946	2,928	275
1952 (est.)	1,800	1,600

Translated into story-behind-the-figures terms, the new boom has had these effects:

- Among the chemical varieties of synthetic detergents, far and away the favorite is the alkyl-aryl sulfonate. Back in 1946, 46 million pounds were made; by last year, a thumping 317 million pounds were being turned out.
- Outstanding form to take the consumer fancy is the powdered (or granulated) product. Thus far, other forms—such as liquids and bars—have not gained wide public acceptance or else have not proved sufficiently profitable.
- The largest portion of these synthetics now goes into household products. One expert estimate places retail sales at 80% of the total.

"Watch Tripoly": With this continuing switchover from soaps to synthetics, certain raw materials, as could be expected, reflect the change. While tallow, grease and coconut oil consumptions slide, other chemicals are shooting up.

The most obvious rise is manifested in the alkyl-aryl sulfonate constituents —principal one being benzene. The seven-fold jump in detergents is directly translatable in terms of benzene.

Another, perhaps less obvious, increase is the big hop in sodium tripoly phosphate production. When asked by CW for a barometer of synthetic detergent growth, one informed source

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responded, cryptically, "Watch tripoly."

The reason behind his remark is that sodium tripoly phosphate is the number one "builder" for all-purpose synthetic-detergent cleaner formulations. A typical combination for such a product might be: alkyl-aryl sulfonate, 25%; sodium tripoly sulfate, 60%, together with other additives.

Output of "tripoly" has truly paralleled the alkyl-aryl sulfonates. Coming out, early in 1950, at 15,000 tons per month, "tripoly" has burgeoned to a present output of 38,000 tons monthly; and it's continuing to grow.

Better Days?: As for tomorrow, experts point to at least three possible turns on the road for soapers. Soap (and tallow) producers may (as some have already) join the enemy, improve soap products, or give up and turn elsewhere.

The first choice is an accomplished fact for some major soap manufacturers. Not only are they turning out detergent products of their own, but some are also finding that it is apparently possible, especially in household products, to wash "too" well. They are therefore adding some soap back into their formulas. Their object being, they say, to give a "soapy" feel and a "satisfying" rinse.

As for improving the old soaps, a new "glassy" phosphate, having high sequestering power, offers hope. It helps to solve the problem of hard-water rinsing.

The tallow makers, themselves, have started a movement to help their faltering industry. At its San Francisco meeting, the National Renderers Association agreed to raise a $25,000 fund as an initial start on a tallow and grease research program. In addition, the association already has under way a project, with joint sponsorship from the American Meat Institute Foundation, in the field of animal proteins.

Speaking in Washington last week on his return from the West Coast, F. B. Wise, president of the association, sounded an optimistic note which attempted to dispel some of the gloom. The replacement of fat-based soaps by synthetic detergents, said he, is just about passing its peak. Moreover, Wise claims, the new non-soap uses for tallow and grease are expanding encouragingly. All of this activity is bound to have a beneficial effect.

So maybe the tallow renderers won't have to give up entirely. With a little patience—plus some research—they may be able to settle for a lower-level, but stable, market for their products.

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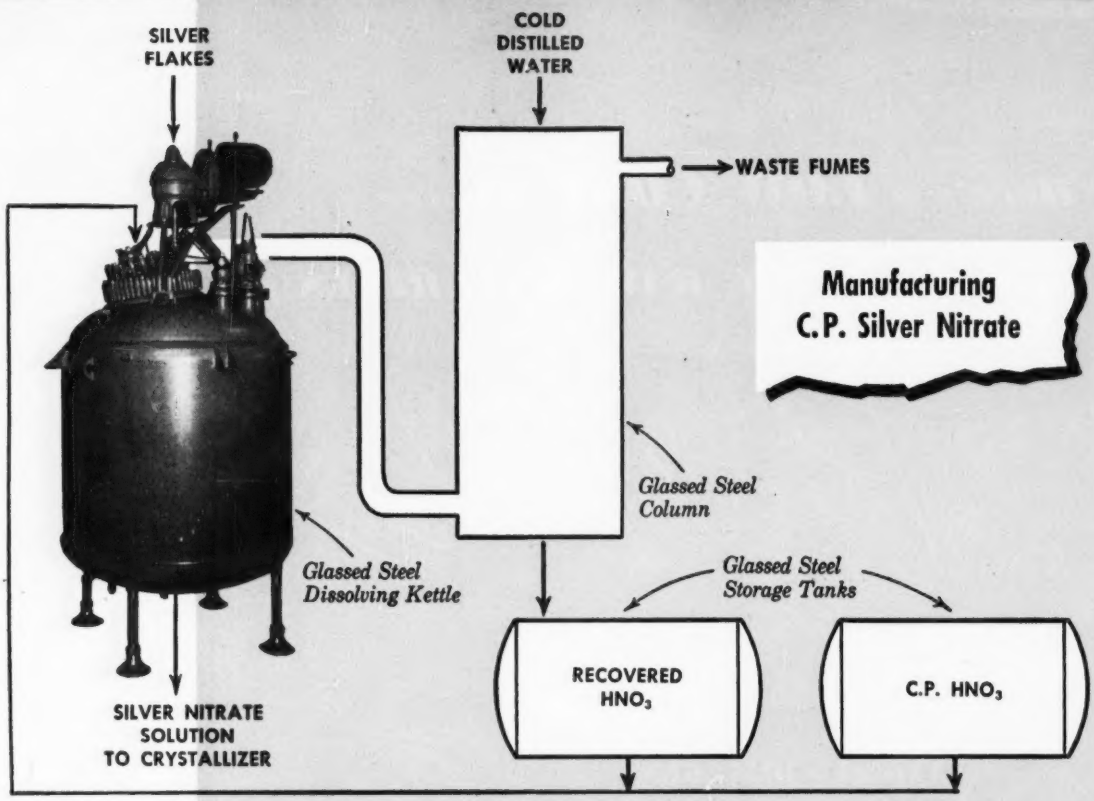

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Statistics Can Make Sales

The Federal Government is a storehouse of statistical facts. One of the beneficial by-products of multiple bureaucracy is that American businessmen, more so than those of virtually any other country, can cull over a mountain of information concerning their industrial and consumer markets.

Indicative that present-day "scientific" selling could hardly operate without the aid of federal fact-finders, the latest meeting of the American Marketing Association, New York Chapter, devoted its program to a series of talks by Washington officials.

For sales managers who know that the facts are there, but don't know where to find them, Walter Ryan of the Office of Statistical Standards, Bureau of the Budget, had a helpful roadmap to offer. He split all government sources into three basic categories: statistical agencies who exist to ferret out facts; administrative agencies which gather facts as a by-product of their operations; and analytical agencies who serve as interpreters of the statistical maze.

One point which must be emphasized is that the published literature from these sources is by no means the total quantity of information available from the agencies. The chemicals listed in the Department of Commerce's "Facts for Industry" series are, for instance, only those which the department feels will be of most widespread interest. Production figures for other commodities are also available on request. Other bureaus, too, are glad to cooperate.

Here are some of the agencies which can supply short-term and long-term indicators for chemical executives, as Ryan would classify them:

Statistical Agencies

Bureau of the Census (Dept. of Commerce)	***Factual data on population and business establishments***
Bureau of Labor Statistics (Dept. of Labor)	***Prices, consumer and wholesale; wages, salaries, and hours***
Bureau of Agricultural Economics (Dept. of Agriculture)	***Crop production, forecasts, and markets; surveys and studies on quality and marketing of agricultural products***
National Office of Vital Statistics (Public Health Service)	***Birth and death rates—their effect on future regional markets***
Bureau of Mines (Dept. of Interior)	***Producion, consumption, and stocks of mineral raw-materials; end-use patterns for mineral products***

Administrative Agencies

Bureau of Old-Age and Survivors Insurance (Social Security Administration)	***Data on national income, employment, number of businesses and types, etc.***
Federal Power Commission	***Information and forecasts on power; utilities, etc.***
Bureau of Internal Revenue (Dept. of the Treasury)	***Income sources, size, and distribution***
Interstate Commerce Commission	***Car-loading facts, broken down by commodity and regions***
Securities and Exchange Commission	***Capital expenditures, actual and forecasted; financing moves***
Bureau of Industrial Economics (Federal Trade Commission)	***Economic and business conditions***

Analytical Agencies

National Income Division, Office of Business Economics (Dept. of Commerce)	***Calculations on national income and gross national product***
Division of Research and Statistics, Board of Governors (Federal Reserve System)	***Industrial production, inventories, sales***
Council of Economic Advisors (Executive Office of the President)	***Economy-wide economic and business trends***

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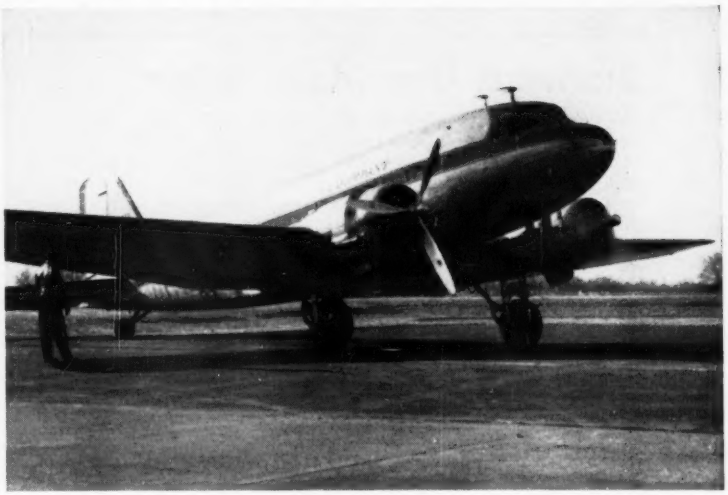

COMPANY PLANES: Hercules and Dow both make . . .

Chemical Businessmen . . .

This week, or next, Du Pont's Textile Fiber Department will take delivery on its second airplane, a twin-engined Beechcraft. It will make a total of four for the corporation. Also this month, the chemical-process plants of Alcoa will be linked by a DC-3, the first to be put into service by the aluminum maker.

These are just two of the chemical-industry straws blowing in the high-altitude winds of corporate aviation. Coming up fast since the end of the war, company planes now have a firm spot in the chemical firmament.

Originally thought of as expensive toys for the top corporate brass, business-operated aircraft must today be considered as practical workhorses for the fast-moving, hard-driving lower executive echelons—the salesmen, engineers, chemists, and plant operators whose scope of activities has grown geographically with the expansion of the industry. At least a dozen* of the largest chemical firms now have millions of dollars invested in airplanes. The list would include, in addition to Du Pont, such companies as Monsanto, Dow, Hercules, Spencer, Mathieson, and Chemstrand.

In a sense, the chemical industry is following the lead of the oil companies, which were pioneers in the use of the business plane. Now that petrochemicals are playing such a large part in the industry's expansion, the chemical firms are turning to airplanes for the same reasons that led the oil companies to experiment in their use: Branch plants are now scattered and isolated, yet they need close personal inspection and consultation by home-office personnel. And from the sales manager's point of view, the company plane allows him and his assistants to keep in close contact with the scattered markets surrounding these spread-out plants.

Big or Little?: As could be expected during such a developmental period, there is a complete lack of agreement on the question of the best type of plane—or of the most practical way to operate it. Some companies like large ones, others prefer to stop at the five-passenger level. Again, certain companies insist on supplying their own pilots and on-the-ground services, while still other contract with outside agencies, or even with scheduled airlines, to handle their craft.

One man who is uniquely able to watch the effect of these varying opinions is Stewart Ayton, general manager of the Atlantic Aviation Service in Wilmington, Delaware. He has contracts with both Hercules Powder and Du Pont, but the services he renders to the two corporations are vastly different. Du Pont is in the "small-plane" category, and it calls on Ayton for a wide range of help, including the sup-

* The Civil Aeronautics Administration estimates that there are nearly 10,000 planes owned by business firms. Of these, over 1,700 are mutli-engined craft, which total is three hundred more than that in the combined fleets of scheduled airlines and irregular carriers.

. . . a DC-3 decision.

. . . In the Air

plying of pilots. Hercules, in contrast, owns two DC-3's, hires its own pilots, and uses the Atlantic Aviation services solely for home-airport maintenance and storage.

The Du Pont philosophy, in its essence, is to use the company plane primarily as a feeder for the scheduled airlines, or as a contact for relatively close-by plants. Consequently the company has stuck to five-passenger Beechcrafts, counting on fast and frequent round trips to keep the operating costs in line. These planes cost about $100,000 each, can be flown for $90-$100 per flying hour, including depreciation.

Ayton feels that Du Pont's aircraft provide an excellent example of why the insurance companies have changed the nomenclature for the function of such planes from "executive transport" to the more accurate "industrial-aid flying." One of the chemical company's planes is reserved for "executives," and it flew only 8,600 miles during the month of October, with a passenger-mileage of less than 16,000 miles. That's an average of less than two passengers per trip.

In contrast, the Textile Fiber Department's plane flew 18,000 miles and racked up nearly 52,000 passenger-miles. The third plane, operating for the Engineering Department, did even better. During the month it kept up an average of 3.6 passengers per flight. These passenger-mile ratios are the key in determining the economic value

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of business-owned aircraft. The base point is, obviously, the 5½¢ per mile which is the average for U. S. airline tickets. Added to this consideration, however, must be the savings in time and executive talent thus allowed.

Flying Offices: But the proponents of the small business plane are apparently in the minority, at least among the larger chemical firms. Hercules' two DC-3's appear to be more typical. Last year they flew a total of 227,000 miles, making trips to destinations as distant as the West Coast, although most of their travel is limited to plants and offices east of the Mississippi.

Planes of this type are usually re-equipped surplus craft, costing in the neighborhood of $190,000. They can carry ten passengers in addition to the pilot and co-pilot, have operating costs ranging up to $200 per hour, including depreciation. The Hercules planes are completely outfitted, were the first company planes to employ two-way "ship-to-shore" telephones capable of maintaining constant contact with the Wilmington headquarters.

It would seem that for the fast-moving executives—both junior and senior—of the fast-growing chemical industry, the company plane is at least a partial solution for their logistic problems.

Dedicating a Demand

When one of your customers holds the patents on a process using your product, how do you go about broadening, the market for that application? This is the puzzler which Victor Chemical Works faced, and here is the way it answered the problem:

In Lowell, Mass., last week, Victor officials announced* that they had bought from Pacific Mills the key patent covering the use of diammonium phosphate in wool dyeing, and that Victor was forthwith "dedicating" the patent to the entire wool industry, which could use it on a royalty-free license basis.

Behind the altruistic words are some hard economic facts:

- Victor Chemical is one of the major producers of diammonium phosphate.
- The Pacific Mills process is sufficiently revolutionary to warrant a suspicion that diammonium phosphate may eventually replace ammonia and ammonium sulfate as the standard buffering agents in the dyeing of woolen goods.

Slow Boil: One of the biggest prob-

*At a meeting of the American Association of Textile Chemists and Colorists, Northern New England Section.

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Centrifugal 36"x40", Bird, Continuous, Consolidated Products, 18 Park Row, N.Y. 38, N.Y.

Crusher — Allis Chalmers, Two Roll 18 x 36. Loeb Equip. Supply Co., 1927 A W. North Ave., Chic. 22

Dryer — American Double Drum 42" x 120". Loeb Equip. Supply Co., Chicago 22.

Dryer — Rotary 4½ x 28 Direct Heat. Loeb Equip. Supply Co., 1927-A W. North Ave., Chicago 22.

Dryer, Vac. Shelf, 20 shelves, 59 x 78, pump cond. (6). Consolid'd. Prod., 18 Pk, Row, N.Y. 38

Dryers, 2 Stainless Drums; 5'x10', First Machinery Corp., 157 Hudson St., N. Y. 13, N. Y.

Filter — Oliver 3' x 4' Everdure Contact Parts. Loeb Equip. Supply Co., Chicago 22.

Filter Press, 18" x 18", Sperry, Iron, P & F, 11 chambers (20) Consolidated Products, 18 Park Row, N.Y. 38.

Filter Press, 42" x 42", Iron, Shriver, 18, 27, 36, 54 Chambers (12). Consolidated Products, 18 Park Row, N.Y. 38.

Filter Press, 30" x 30", Aluminum, 45 Chambers, Consolidated Products, 18 Park Row, N.Y. 38

Filters, all sizes and types. Perry Equipment 1415 N. 6th St., Phila. 22, Pa.

Mills, Raymond #5057, High Side Roller, (2) Consolidated Prods., 18 Park Row, N.Y. 38.

Mills, Traylor tube, 5'x22", 5'x20', 4'6"x18'6", 4'x13', stone lined, pebble charge (4). Consolidated Products, 18 Park Row, N.Y. 38, N.Y

Mixers, 700 gal. Turbo, Simplex, Jktd. (2). Consolidated Products, 18 Park Row, N.Y. 38.

Mixer, horiz. ribbon, 14'x7'6"x6', jktd. 450 cu. ft Consolid'd. Prod., 18 Pk. Row, N.Y. 38.

Mills, Day 14" x 30" 3 roll high speed roller (8) Consolidated Prod. Inc., 18 Park Row, N.Y. 38.

Pebble Mills; 8'x8', Porcelain lined. First Machinery Corp., 157 Hudson St., N.Y. 13, N.Y.

Pebble Mills 10 gal. to 800 gal., porcelain lined, 20. Consolidated Products, 18 Park Row, NY 38

Pulverizer—Mikro #4 has 40HP motor. Equipment Clearing House, 285-10 St., Bklyn 15.

Reactors, Pfaudler Jktd. 400 Ga. First Machinery Corp., N.Y. 13, N.Y.

Screens — Tyler Hummer 4' x 10' double deck. Loeb Equip. Supply Co., Chicago 22.

chemical process industries

Tanks—2—2725 gal. tanks; same as above specifications except length—these are 20′ long. Tanks were used in milk tank truck services. Can be loaded on trucks at present location or on cars at nearby Railroad siding. Leonard H. Himes, Exton, Pa. Phone—Exton 760.

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Tanks, Alum, closed — 330, 480 and 1450 gal. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Tanks, S/S, from 30 gal. to 5700 Gal. Perry Equipment Corp., 1415 N. 6th St., Phila. 22 Pa.

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Tanks—6—2250 gal.-type 18-8 stainless steel 60″ Diameter—16′ long—20″ manhole on top with 3″ inlet connection in manhole cover, 3″ outlet in rear head at bottom good for 30 lbs. air pressure; 1½″ cork insulation, mild steel outer jacket, most of them recently new insulation. Tanks were used in milk tank truck services. Can be loaded on trucks at present location or on cars nearby Railroad siding. Leonard H. Himes, Exton, Pa. Phone—Exton 760.

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lems which face wool dyers is that the fiber dyes so readily. This means that elaborate pH controls are needed to prevent streaking and rejections. Another by-product of its easy-dyeing characteristic is that comparatively little research has been done on new dyeing techniques—especially on eliminating the human-factor variable which has made present buffering methods the major source of rejections due to improper processing.

The proponents of diammonium phosphate claim that the inherent chemical characteristics of the product take the guesswork out of the buffering operation. It automatically adjusts the pH of the starting bath to the slight alkalinity needed to swell the fibers, thereby permitting the dyestuff to penetrate deeply. Then, as the bath is boiled, the phosphate slowly breaks down, shifting the pH to the acidic side where it facilitates the fixation and exhaust of the dyestuff.

Full Particulars: The process is the result of several years of research by Pacific Mills' laboratory at Lawrence, Mass. As a part of the arrangement between Pacific and Victor, the latter's technical service representatives will be able to use much of the practical knowledge developed by Pacific Mills on the adaptation of the process to various dyes and dyeing techniques. This will give Victor's salesmen a running headstart on broadening the market they have created by their patent purchase.

* Gerald Cote, textile specialist, Victor Chemical Works (*left*); and Harold Leitch, general superintendent in charge of research, Pacific Mills.

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DISTRIBUTION . . . .

Vinyl Views

In a blast at what he calls the "loose and misleading" nomenclature of vinyl-film gage measurements, Monsanto's Ultron sales manager, Stanley King, urged that the producers follow the textile industry's lead on solving the problem.

In a statement made at St. Louis, King pointed out that "since film is sold by the pound, there is a constant pressure on film processors to reduce the gage thickness for better yield." Moreover, he asserted, "to the embarrassment of the industry, a few processors have resorted to these methods.

King's recommendation: Sell by pounds, if necessary, but specify exact film thickness by a standard industry-wide gage.

•

Added Agents: Two new sets of agencies have been appointed recently, one for plastics, the other for hydraulic fluids.

• United States Rubber Co. has increased its plastic-products coverage of the Midwestern states by the appointment of Indiana Wholesalers (Evansville, Ind.), Dealers Wholesale Supply (Indianapolis, Ind.), Schraufnagel Wholesale (Green Bay, Wis.), and Hass Wholesale (South Bend, Ind.).

• A national distributorship has been given to Socony-Vacuum Oil Co. by Monsanto Chemical. The contract covers Monsanto's Pydraul F-9 nonflammable-type hydraulic fluid, which the chemical company introduced in January of last year.

Selling Package

VINYL FLOOR TILES are now reaching the customer in a brightly colored new carton, redesigned by the Goodyear Tire & Rubber Co. Replacing the drabber, natural-buff color of the corrugated boxes formerly used, this blue and gold design allows the retail dealer to highlight Goodyear's product in his store displays.

REICHHOLD

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GLYCERINE, MALEIC ANHYDRIDE,
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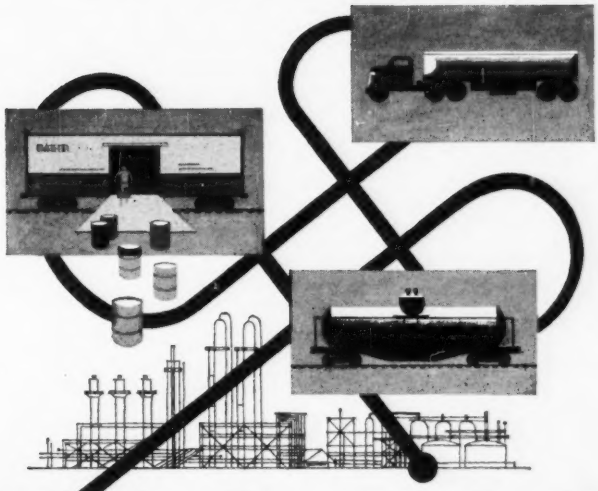
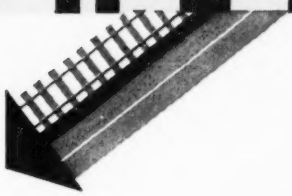


CHEMICALS



• Reichhold has become a major producer of the basic chemicals listed above primarily to supply its own world-wide manufacturing organization. The uniformity and quality of these chemicals are assured by the very latest production equipment and quality control systems. Because of the tremendous capacity of these RCI plants, Reichhold is frequently able to share its output with other industries. If you need phenol, glycerine, maleic anhydride, phthalic anhydride, sodium sulfate or sodium sulfite, call on Reichhold for current availabilities . . . write, wire or phone the Chemical Department.

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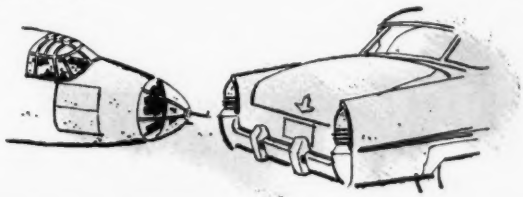

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